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ABSTRACT

This curriculum guide for junior high school students contains 17 information acquisition lessons, 5 values awareness lessons, and 6 open-ended discussion lessons. Some lessons contain activities that extend over several days; other lessons contain one specific activity. The nutrition education goals are directed toward the attainment of nutrition subject matter, organized into five topics, which serve as a foundation for nutrition instruction, curriculum development, and evaluation. The topics included the following categories: (1) food choices as related to the attainment of optimal health; (2) factors influencing food choices (lifestyles, peers, and families); (3) food-related careers--needs, roles, responsibilities, and educational requirements; (4) consumer competencies; and (5) food handling. Activity materials for students are included. (JD)

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Nutrition Education
Choose Well Be Well

A Curriculum Guide for Junior High School

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Nutrition Education

Choose Well Be Well

A Curriculum Guide for Junior High School

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Contents

Page
Preface vii
Acknowledgments viii

Introduction to the Curriculum 1

Junior High Nutrition Lessons 7
Lesson 1. Choosing a Nutritionally Adequate Diet 8
Lesson 2. Identifying How Food Choices Affect Physical Fitness and Appearance 11
Lesson 3. Selecting a School Lunch 15
Lesson 4. Exploring Feelings About Selecting a School Lunch 19
Lesson 5. Defining Calories 20
Lesson 6. Exploring Values About Favorite Foods 26
Lesson 7. Eating Whole Grains 27
Lesson 8. Exploring Complementary Proteins 30
Lesson 9. Sharing Feelings About Food 34
Lesson 10. Sharing Feelings About Food Choices 35
Lesson 11. Identifying Influences of Emotional Feelings on Eating 38
Lesson 12. Identifying Nutritionally Adequate Cultural Food Patterns 45
Lesson 13. Sharing Feelings About Cultural Food Habits 49
Lesson 14. Identifying Careers in Food-Related Fields 50
Lesson 15. Sharing Feelings About Job Choices 52
Lesson 16. Exploring Values About Jobs in Food-Related Fields 53
Lesson 17. Influencing Decisions Made in the Food Industry 54
Lesson 18. Influencing the School Food Service Program 59
Lesson 19. Identifying Information on Food Labels 65
Lesson 20. Specifying Factors That Affect the Food Supply 70
Lesson 21. Sharing Feelings About Influencing the Food Industry 75
Lesson 22. Exploring Values About the School Food Service Program 76
Lesson 23. Examining Food-Borne Illnesses 79
Lesson 24. Preparing Food to Maximize Nutrient Retention 83
Lesson 25. Preserving Foods 88
Lesson 26. Identifying Agencies Which Enforce Food Sanitation 91
Lesson 27. Sharing Ideas About Food-Borne Illnesses 95
Lesson 28. Exploring Values About Food Handling 96

Appendixes

A. Curriculum Participants A-1
B. National School Lunch Program—Background and Philosophy B-1
C. Nutrient Composition Table C-1
D. Minimum Proficiency Levels for Nutrition Education Preschool Through Grade Twelve D-1
E. Dietary Guidelines for Americans E-1
F. Food Group Guide F-1
G. You and Nutrients G-1
H. Youth Advisory Council H-1
I. Food-Related Career Opportunities I-1
J. Junior High Multidisciplinary Lessons J-1
K. Student Materials K-1
    Food Record K-2
    Could I Stay Healthy for Long on This Menu? K-3
    Selecting Foods for Good Health K-4
    Freddie's Fast-Food Drive-in Restaurant K-5
    Maria's Mexican Restaurant K-6
    Mike's Menu K-7
    Healthful Diet Quiz K-8
    What You Eat Is What You Get K-10
    Most Recent Meal K-11
    Guide to Good Eating for Health and Fitness K-13
    How Should I Change My Diet? K-14
    Fit Folks Need Fit Food K-15
    Three Diets K-17
    Nutrients for You K-19
    The School Lunch Pattern K-21
    Food Sources of Vitamin A, Vitamin C, and Iron K-22
    Lunch Scoreboard K-24
    Menu Evaluation K-25
    What's for Lunch? K-26
    Ray's Problem K-27
    Ray's Luncheon Choices K-28
    Calories and Nutrients K-29
    How Can I Get 150 Calories? K-30
    Height and Weight Chart K-31
    Food Diary K-32
    Calories and Activity K-34
    Finding The Diet That Will Work for You K-35
    Calories and Exercise K-36
    Pack a Lunch K-37
    Calories in Fast Foods K-38
    Fast-Food Friends K-39
    Quiz K-40
    Silhouette of Girl's Head K-41
    Silhouette of Boy's Head K-42
    Rebus Puzzle K-43
    Vocabulary Sheet K-44
    Whole Wheat Kernel K-45
    Cereal Box Labels K-46
    Cereal Label K-47
    Health Problems Thought to Be Associated with Low Fiber Diets K-48
    Counties with High and Low Fiber Diets K-49
    Word Game K-50
    Whole Grain or Refined? K-51

Complementary Protein Vocabulary K-52
Complementary Protein Definitions K-53
Complementary Protein Cards K-54
Protein Sentences K-56
Plant Sources of Protein K-57
Plant Sources of Protein List K-58
Plant Sources of Protein Chart K-59
Complementary Protein Combinations K-60
Complements from Protein K-61
What Is Your Complementary Protein IQ? K-62
Exploring Values About Food Choices K-63
Transparency Master One K-64
Transparency Master Two K-65
Transparency Master Three K-66
Transparency Master Four K-67
Eating Behavior K-68
Word Cinquains K-70
Cinquain Examples K-71
Mary's Problem K-72
Influences on Eating Behavior K-73
Food Shield Comparison K-75
My Culinary Roots K-76
Cultural Food Choices K-77
Menu Evaluation K-78
Foods for Holiday Celebrations K-79
Eating Other Foods K-80
Food-Related Careers Investigation K-81
How Much Do They Earn? K-83
Food Career Riddles K-85
Dear Annie Letter K-86
Which Job Would You Choose? K-87
Coupons K-89
Unfair Advertising Practices Puzzles K-90
Unfair Advertising Practices K-94
Ways to Prevent Becoming a Victim of Unfair Advertising Practices K-95
Recourses Available to the Consumer K-96
Role-Playing Cards K-97
Rules for Writing Consumer Complaint Letters K-98
Complaint Letter K-99
Advertising Techniques K-100
School Lunch—Hoorays and Helps K-101
How Does Your Nutrition Knowledge Add Up? K-102
Answer Key to "How Does Your Nutrition Knowledge Add Up?" K-103
The Student as a Food Service Consumer K-104
How to Read a Label K-106
Sliced Peaches Label K-107
How to Read a Label (Completed) K-108
Chicken Fry Label K-109
Mayonnaise and Salad Dressing Labels K-110
Smith's 100% Natural Cereal Label K-111
Lee's Fruit Pie Label K-112
Jell-Quick Label K-113
Pure Grain Elbow Macaroni Label K-114
Name That Product K-115
What's on Your Label? K-117
Label for the Crossword Puzzle K-118

Label Crossword Puzzle K-119
What's on the Label? K-120
In What Ways Is Food Affected on the Long Road from Farm to Market? K-122
The Long Road from Farm to Market K-123
Polar Forces K-125
From Farm to Market K-126
Food Advertisements K-128
Group Prediction Sheet K-131
Situation Cards K-132
Situation Cards—Teacher's Key K-134
Factors That Affect Food Availability K-135
Saturday Brunch Blues K-137
Sugar Content of Breakfast Cereals by Weight K-138
Quality of Food K-139
Variety of Food K-140
Dining Environment K-141
Sample Chart One K-143
Sample Chart Two K-144
Sample Chart Three K-145
Food Signs K-146
Food-Borne Illness Signs K-147
Newspaper Articles K-148
Types of Food Poisoning K-149
Types of Food Poisoning (Transparency Master) K-150
Food-Borne Illness K-151
Safety and Sanitation K-152
Food Poisoning K-153
Tips on Vegetable Preparation K-154
Transparency I K-155
Transparency II K-156
Wok K-157
Stir-Frying K-158
Basket Steamer K-159
Test for Vitamin C K-160
Food Preparation K-161
Freezing K-162
Freezing to Preserve K-163
Temperature K-164
Drying K-165
Drying to Preserve K-166
Drying Fruit K-167
Canning K-169
Canning to Preserve K-171
Food Preservation Crossword Puzzle K-172
Food Preservation Quiz K-173
What Does a Food Inspector Check? K-174
Food Service Rating Form K-175
Governmental Agencies Information Sheet K-177
Governmental Agencies K-179
Fact-Finding Mission K-180
How You Can Report to the FDA K-181
Know the Right Role K-183
Food Sanitation and Safety K-184
Darlene's Dilemma K-185
Food Handling Observation Sheet K-186

Preface

National attention increasingly is being focused on the importance of nutrition for good health. Studies have shown that nutrition plays a direct role in students' overall mental and physical development. We must focus on the important task of improving the nutrition and the quality of our students' lives through an ongoing, effective nutrition education program. To accomplish this task, we must change students' attitudes toward food, modify their eating habits, and improve their ability to use nutrition information.

Nutrition Education—Choose Well, Be Well, a series of nutrition education curriculum guides, was designed to assist educational agency personnel in the initiation, expansion, and improvement of nutrition education programs. The *Nutrition Education—Choose Well, Be Well* series is not a prescription for learning, but rather a resource from which teachers and food service personnel can acquire ideas to develop relevant curricula for specific learning groups.

Nutrition Education—Choose Well, Be Well is divided by age spans: preschool age and kindergarten, primary grades, upper elementary grades, junior high, and senior high school. Within each age span, lessons are organized by grade level and contain activities that may extend over several days. All activities contribute to students' abilities to reach the expected performance levels identified in the *Minimum Proficiency Levels for Nutrition Education in California Schools.*

The goal of nutrition education and the *Nutrition Education—Choose Well, Be Well* series is to provide opportunities through which individuals develop the knowledge and skills necessary to make wise food choices that will contribute to their overall health and well-being throughout their lives.

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Many other health, nutrition, and project specialists, food service managers, teachers, and community resource persons participated in curriculum writing and field testing. These persons are acknowledged in Appendix A.

Introduction to the Curriculum

Many Americans do not eat wisely. Influenced by misleading food advertisements and diet fads and rushed by the demands of work and home, these people often make food choices based on convenience and give little or no thought to the nutritional contribution of the foods selected. As nutrition studies have shown, this failure to select food wisely is responsible in part for many Americans having less than optimal health.

What can be done? Nutrition educators are attempting—through efforts such as the *Choose Well, Be Well* curriculum series—to help individuals obtain the knowledge and skills necessary to make food choices that will contribute to their overall health throughout life. The result of this instruction, it is hoped, will be life-long improvement in the well-being of all Americans.

Role of Nutrition Education in the Curriculum

Many goals have been stated for education. Foremost, educational agencies have the demanding responsibility for educating the total individual. Nutritional status affects a person's mental and physical alertness. Therefore, nutrition education is a positive effort to maximize the learning potential of students.

Within the school curriculum, students can learn the importance of a nutritionally adequate diet through a positive daily lunchroom experience as well as through appropriate classroom reinforcement. Through a continuing and sequential educational process, students are able to transform knowledge about their nutritional needs and the nutritive value of foods into decisions affecting their eating behavior and promoting their health and well-being. Students can gain sufficient background for their nutrition decisions from educational experiences related to food choices, factors that influence food choices, appropriate methods of food handling, effective consumer practices, and food-related careers.

A nutrition education curriculum need not compete for teaching time with other curricula deemed important by the school. Nutrition education activities may be integrated into subject matter areas such as science, art, mathematics, social studies, language arts, and physical education.

Relationship of Nutrition Education to Health

A curriculum designed to meet the goals of nutrition education emphasizes health as a significant value in one's personal life. An important value, such as health, does not develop as the result of student exposure to a few "lessons." Rather, the value emerges and changes as students acquire, experience, and evaluate new information. A curriculum that attempts to foster health as a value allows students, throughout their school experience, to build their knowledge, to question, and to make decisions about personal health that will contribute continuously to their overall well-being.

Decision Making in Nutrition Education

The decision-making process is inherent in food selection. Decisions about food that are made daily do have a cumulative effect on an individual's health and well-being. Because the range of decisions individuals make affects their lives, one unique feature of the *Choose Well, Be Well* curriculum series is that lessons have been designed to enable students to make wise nutrition-related decisions. Lessons in the curriculum series provide accurate and current information, facilitate an awareness of students' own nutrition-related values, and provide opportunities for them to share their nutrition-related opinions and attitudes with others as part of the decision-making process.

Goals for Nutrition Education

The goals for nutrition education are developed from the *Health Instruction Framework for California Public Schools.* The nutrition instructional program is planned to enable students:

- To develop an understanding that eating patterns are dependent on interrelationships among physical, social, psychological, economic, and cultural factors
- To consider alternatives in meeting nutritional needs and to select various ways to achieve good nutrition within these eating patterns
- To develop eating patterns which contribute to wellness

The nutrition education goals are directed toward the attainment of nutrition subject matter, organized into *five* topics (referred to as concepts in the *Health Instruction Framework*). The identified topics serve as a foundation for nutrition instruction, curriculum development, and evaluation. The topics include the following categories:

- *Food Choices*—Daily food intake is related to the attainment of optimal health.
- *Factors Influencing Food Choices*—Life-styles, peers, and individual family resources reflect similarities and differences in food choices.
- *Food-Related Careers*—Needs, roles, responsibilities, and educational requirements affect an individual's choices in food and health nutrition-related careers.
- *Consumer Competencies*—Effective utilization of existing resources may enhance the potential for satisfying individual and family nutritional needs and wants.
- *Food Handling*—The quality and safety of foods are influenced by the handling, processing, and preparing of foods.

Minimum proficiency levels for students were developed in each of these topic areas to ensure the systematic achievement of the three goals from the *Health Instruction Framework.* The proficiencies providing the basis for the objectives and lessons in this curriculum are found in the publication *Minimum Proficiency Levels for Nutrition Education in California Schools.* (See Appendix D.)

Organization of the Curriculum

This curriculum guide contains seventeen information acquisition lessons, five values awareness lessons, and six open-ended discussion lessons.

Some lessons contain activities that extend over several days; other lessons contain one specific activity. All activities contribute to students' abilities to reach the expected performance levels identified in the *Minimum Proficiency Levels for Nutrition Education in California Schools.*

How to Use the Curriculum

The recommended grade level for curriculum lessons given in Chart 1 suggests a method for satisfying the minimum proficiencies across all grade levels. Although a sequence for teaching the lessons is suggested, lessons are not restricted to the recommended grade level. It is more important that teachers be able to select lessons which fit in with their own sense of curricular sequencing. Teachers may select among lessons as well as among activities within lessons. Teachers are encouraged to adopt or adapt lessons which blend with their ongoing curriculum and meet the specific needs of their own students.

Teaching Strategies

Many aspects of nutrition education, such as selecting foods, require emphasis on knowledge and attitudes. Cognitive learning about nutrition and food choices is not sufficient for achieving the nutrition goals recommended in this guide. Rather, a balance of cognitive and affective learning allows students to make food decisions based on knowledge and an awareness of their own opinions and values.

Lessons contained in *Nutrition Education—Choose Well, Be Well* contribute to the balance between cognitive and affective learning necessary for students to make wise food choices. The lessons focus on three different teaching strategies: information acquistion, values awareness, and open-ended discussion.[1]

1. Information acquisition lessons

   Key Outcome:

   - Provides the students with basic knowledge and skills

   Process for Implementing the Teaching Strategy:

   - Inform the students of what they are to learn and describe how learning will be evaluated.
   - Make the specific information available to the students.
   - Provide practice for the students in recalling specific information by having them do such

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[1] Lesson classification and suggested teaching strategies are provided through the courtesy of Raymond G. Cowan, Gus T. Dalis, Dennis C. Loggins, Benedict B. Strasser, and the Office of the Los Angeles County Superintendent of Schools. This material was distributed by the Teaching Strategies Center, Division of Curriculum and Instructional Services, and was copyrighted in 1979.

Chart 1
Recommended Grade Levels for Curriculum Lessons

Curriculum lessons	Recommended grade level*								
	Preschool/ kindergarten	1	2	3	4	5	6	Junior high	Senior high
Food Choices Lessons									
Classifying foods	●	●		●					
Need for food	●								
Diet-related health problems		●	●						
Digestion			●		●				●
Basic food groupings			●			●			
Personal energy needs				●				●	●
School lunch pattern				●		●		●	
Six nutrient groups					●	●			
Planning nutritionally adequate meals							●	●	●
Total health and well-being									●
Food facts and fallacies									●
Physical fitness								●	
Influences on nutrient needs									●
Vegetarian diets								●	●
Whole grains								●	
Recommended Dietary Allowances									●
Factors Influencing Food Choices Lessons									
General environmental influences	●		●						
Aesthetic and sensory influences	●					●			
Cultural influences	●						●		
Between-meal snacks		●							
Home and social influences				●	●			●	●
Emotional influences								●	
Worldwide nutrition problems									●
Food-Related Careers Lessons									
Role of workers in food and health-related careers	●	●	●	●	●	●	●	●	

Recommended Grade Levels for Curriculum Lessons—Continued

Curriculum lessons	Recommended grade level*								
	Preschool/ kindergarten	1	2	3	4	5	6	Junior high	Senior high
Educational requirements									●
Nutrition in other disciplines									●
Consumer Competencies Lessons									
Advertising	●	●							●
Food waste	●		●						
Food labels				●				●	●
Influencing the school lunchroom environment					●				
Influencing the school lunch menu						●		●	
Unit pricing							●	●	
Influencing the food industry								●	
Evaluating the validity of nutrition information									●
Factors affecting food in the market place								●	
Wise food purchasing									●
Regulation of school lunch program									●
Food Handling Lessons									
Plant growth and production	●						●		
Sanitation	●	●							●
Food storage	●		●						
Food preparation	●			●		●		●	
Food-borne illness					●			●	
Food preservation								●	
Pesticides									●
Food processing									●
Enforcing sanitation requirements								●	

*NOTE: A solid bullet (●) indicates that a lesson addressing a specific proficiency is included in the identified grade level. These recommendations are not intended to be followed rigorously; rather, they are an outline of how a nutrition program might progress from one grade level to another grade level.

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things as identifying, distinguishing, listing, and describing. Monitor the students' practice, and provide appropriate feedback.

- Use the evaluation described in each lesson to assess students' ability to recall the information specified.

2. Values Awareness Lessons

Key Outcomes:

- Allows students the opportunity to identify reasons for their choices and to label the reasons as values
- Allows students an opportunity for independent thinking and self-expression in a nonjudgmental atmosphere

Process for Implementing the Teaching Strategy:

- Ask students to focus on a particular issue or topic.
- Ask students to make a choice about the particular issue and give a reason for that choice.
- Assist students in clarifying their responses.[2]
- Inform students that while they are giving reasons for their choices, they are really talking about their values.
- Follow the activity sequence in the order given for the most effective use of this type of lesson.

3. Open-Ended Discussion Lessons

Key Outcome:

- Provides students an opportunity to share ideas and opinions in a nonjudgmental atmosphere

Process for Implementing the Teaching Strategy:

- Inform the students that the purpose of this activity is to give them an opportunity to express how they feel about a particular topic.
- Describe the rules for discussion:
  a. Explain to the students that as teacher or leader you will not give your opinion but that you will help make sure that all of the students will have a chance to talk if they wish.
  b. Explain that if the students do not understand what someone has said, they may ask that person for further clarification.
  c. Remind the students that people will have different ideas. They may disagree with the ideas of other people, but they should not make fun of what others think.
  d. Inform the students that they will take turns speaking in the discussion.
- Restate the particular discussion question you have chosen for class response and invite the students to share their thoughts and opinions.
- Follow the discussion sequence in the order given for the most effective use of this type of lesson.

Community and Parent Involvement

Community agencies and parents can be immensely helpful in contributing to the educational process. Frequently, they can provide assistance in implementing lesson activities, serve as classroom speakers, or provide print and audiovisual materials.

Food Service Involvement

The support of the food service department within educational agencies is essential to the success of nutrition education. Food service personnel have a keen interest in nutrition education and can be valuable members of the nutrition education team. Nutrition education staff members are encouraged to develop creative methods for integrating the food service program with the nutrition curriculum. The cafeteria should be viewed as a laboratory for the practice of nutrition and a culmination of the decision-making process which has been initiated in the classroom.

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[2] In some instances it will be necessary to follow student comments with further clarifying questions; i.e., "Would it be correct to say that one of your values about breakfast foods is that they are quick and easy to prepare?" Allow students to answer yes or no and thereby to consider whether or not the stated value is important to them.

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Junior High Nutrition Lessons

The nutrition education lessons for junior high students were designed as a resource for administrators, teachers, school food service employees, and others who wish to offer instruction relating to the minimum proficiency levels in nutrition education. Each lesson focuses on one of five topics: (a) food choices; (b) factors influencing food choices; (c) food-related careers; (d) consumer competencies; and (e) food handling. In addition to providing instruction in the five topic areas, the lessons are designed (1) to help students acquire basic information; (2) to encourage them to discuss matters relating to nutrition; and (3) to help students become aware of the values they place on certain issues related to nutrition. Each lesson activity provides a description of the procedures to be followed, instructional materials necessary for the activity, and evaluation instruments appropriate to the lesson.

Lesson 1. Choosing a Nutritionally Adequate Diet

An information acquisition lesson designed to help students select menu alternatives that provide a nutritionally adequate diet

Objective

After completing this lesson, students should be able to select alternative foods from the Basic Four Food Groups that will provide a nutritionally adequate diet.

Key Facts

Daily food intake is related to the attainment of optimum health. The following principles can help a person to make wise food choices:

- The classification of foods into similar groups makes it easier to select foods that will help a person achieve a nutritionally adequate diet.
- A variety of foods may be combined to help ensure a nutritionally adequate diet that includes the nutrients that are necessary for optimum health.

The four food group plan is one simple and quick guideline for dietary planning, but it is not a guarantee of adequacy. Individual foods vary in nutrient content, and the selection of foods within each group can make a big difference in the nutritional quality of a diet. However, a diet that is planned around this guide is more apt to be nutritionally adequate than one that is randomly chosen. Other food classification systems are available, but this lesson will utilize the four food group plan.

Each of the four food groups contains foods that are similar in origin and in nutrient content.

The four food group plan specifies a certain quantity of food that should be consumed from each group. Refer to Appendix F, "Food Group Guide," for more information about the four food group plan.

Nutrition and Your Health: Dietary Guidelines for Americans was developed jointly by nutritionists from the U.S. Department of Agriculture and the U.S. Department of Health and Human Services. Based on what is known today about the relationship of diet to good health, the guidelines were developed to help Americans make informed choices about food. Refer to Appendix E, "Dietary Guidelines for Americans," for more information on this topic.

Activities

Procedures	*Materials needed*
Special note: Throughout this lesson, it is suggested that students volunteer their contributions during the discussions of their personal food intake records, because food intake may be a private matter to some students.	
1. Distribute, prior to the beginning of the lesson, the "Food Record" work sheet and request that the students record everything they eat for a 24-hour period. Review the directions for filling out the record with the students. Remind the students to include all foods eaten during meals, foods eaten as snacks, and all beverages consumed.	Work sheet: "Food Record," page K-2
Note that this lesson requires knowledge of the four food groups. Appendix F, "Food Group Guide," provides a basic review of the four food groups, the nutrients provided, and the amounts of servings recommended. Distribute the handout to the students as a way for them to review the food groups.	"Food Group Guide," Appendix F Review pages 23 and 24 in *Nutrition Education—Choose Well, Be Well: A Resource Manual for Secondary Teachers.*
Explain to the students that the purposes of this lesson are to help them become aware of how their food intake compares with guidelines for a nutritionally adequate diet and ways in which to select nutritious alternative food choices.	

Procedures	*Materials needed*
Ask student volunteers to read the names of foods recorded on their 24-hour records (or use a sample menu if preferred). As the name of each food is read, ask the students to list these names in the correct food group. Using the transparency "Could I Stay Healthy for Long on This Menu?" (or using the chalkboard), record the students' answers. Correct the students' answers using Appendix F, "Food Group Guide." Remind the students of the requirements for food sources of vitamins A and C, as listed in the handout.	Transparency master: "Could I Stay Healthy for Long on This Menu?" page K-3 Handout: "Food Group Guide," Appendix F
Distribute the work sheet "Could I Stay Healthy for Long on This Menu?" Ask the students to tally the name of each food recorded on their food record in the appropriate food group section on the work sheet. Direct the students to tally "extra foods" (high sugar, high fat, low nutrient foods) in the "extras" column. (If desired, ask the students to circle "extra foods" in red on the food record.) Remind the students that there is no requirement for these "extra foods" and that extra calories, if needed, can be obtained from foods within the four food groups.	Worksheet: "Could I Stay Healthy for Long on This Menu?" page K-3 (The transparency master and the work sheet are the same.)
Conduct a discussion of the students' eating records. Ask the students to compare their results with the four food group requirements. Request the students to comment on how well they met their nutritional requirements and to consider which foods they could add to their diets to fulfill any nutrient requirements their present diet is not supplying. Discuss which food group's (or groups') requirements most often were not met and which food group's (or groups') requirements were the easiest to meet.	
2. Distribute Appendix E, "Dietary Guidelines for Americans." Ask the students to read the handout and then discuss the dietary guidelines listed.	Handout: "Dietary Guidelines for Americans," Appendix E
Using the 24-hour food records, ask the students to discuss how they could improve their diets, based on the dietary guidelines. Ask for specific foods that may be limited and specific foods that may be added.	
3. Refer to the students' food records and discuss where meals were eaten. Ask the students how many ate meals away from home and how this practice affected the food choices. Take an informal class survey to determine the average number of times per week the students eat out or have meals away from home. Calculate the average percentage of meals eaten away from home for the class and discuss the significance of this number.	
Distribute the work sheet "Selecting Foods for Good Health" and the handouts "Freddie's Fast-Food Drive-in Restaurant" and "Maria's Mexican Restaurant." Explain to the students that the purpose of the activity is to select nutritionally adequate meals for one day based on the guidelines discussed in class. (*Note:* Actual restaurant menus may be used for this lesson if available.)	Work sheet: "Selecting Foods for Good Health," page K-4 Handout: "Freddie's Fast-Food Drive-in Restaurant, " page K-5 Handout: "Maria's Mexican Restaurant," page K-6
Direct the students to tally the foods selected onto the work sheet "Mike's Menu." Ask the students to hand in their completed work sheets. Discuss any difficulties or comments concerning the work sheet with the students. (If desired, this work sheet may be completed as a group activity.)	Work sheet: "Mike's Menu," page K-7

Evaluation

1. Have the students complete the "Healthful Diet Quiz," pages K-8 and K-9, and discuss their answers.
2. Discuss the effects this lesson has had or may have on the students' food choices.

Food Service Involvement

Obtain a copy of the weekly or monthly school lunch menu from the food service manager or director. Ask this person to discuss with the students how their nutrient needs are met in the school lunch program. (This topic will be discussed further in Lesson 4.)

Notes

Answer Key

"Healthful Diet Quiz," pages K-8 and K-9

1. Answers will vary. They could include fresh vegetables and fruit, unsalted popcorn, small sandwiches using whole wheat bread, punch made from fruit juices, whole wheat crackers and nuts, other foods from the four food groups, and foods recommended in the "Dietary Guidelines for Americans" (low salt, low sugar, low fat).
2. The six dietary guidelines are as follows: (1) eat a variety of foods; (2) maintain ideal weight; (3) avoid too much fat; (4) eat foods with adequate starch and fiber; (5) avoid too much sugar; and (6) avoid too much sodium.
3.

A Food Group	B Menu	C Alternate Menu (Answers will vary.)
Meat, Poultry, Fish, and Beans	Chili with beef and beans	Tuna or egg sandwiches
Bread and Cereal	Whole wheat crackers	Bread
Fruit and Vegetable	Sliced tomato salad	Fresh orange
Milk and Cheese	Milk	Cheese slices, cottage cheese, or yogurt

4. Answers will vary, but dinner should include foods from the four food groups. The following are some examples: Add beef, peppers, or other meats or vegetables to the pizza. Include a salad, fresh fruit or vegetables, fruit juice, milk, or yogurt.
5. Answers will vary, but they should include principles learned in the lesson, including recommendations from Appendix E, "Dietary Guidelines for Americans," and use of the four food group guidelines.

Lesson 2. Identifying How Food Choices Affect Physical Fitness and Appearance

An information acquisition lesson designed to help students identify the effects that food choices have on a person's physical fitness and appearance

Objective

After completing this lesson, students should be able to identify four ways that a person's physical fitness and appearance are affected by food choices.

Key Facts

Physical fitness pertains to the positive health status of the entire body and ranges from an individual's maintaining the proper weight and feeling good to becoming an Olympic-bound athlete. Many factors influence a person's physical fitness, such as the amount of exercise, level of stress, amount of sleep, mental attitude, and kind of food consumed. All of these factors are probably interrelated in influencing physical fitness.

Ways in which dietary intake affects one's physical fitness and appearance are found in the handout "What You Eat Is What You Get," page K-10.

Obesity is related to a person's physical fitness and appearance in the following ways:

- Obesity can cause or aggravate medical problems such as:
  - High blood pressure
  - Heart disease
  - Adult-onset diabetes
- Obesity may prevent a person from participating in exercise because of medical risks or self-consciousness.
- Obesity may occur from a lack of exercise.
- Obesity affects a person's appearance and may cause a person to have a poor self-image, because one feels bad about the way he or she looks.

Students who consistently feel listless, tired, bored, or unable to concentrate should be encouraged to look at their diets in relation to both what and when they eat.

A difference exists between a physical conditioning program and an athletic training program and the related dietary needs. A physical conditioning program involves moderate activity on a consistent basis; athletic training requires rigorous training, the success of which is generally measured by an individual's performance in a sport or competitive event.

The individual who is eating a healthful diet receives all necessary nutrients for a physical conditioning program. An individual in athletic training has additional requirements. These are discussed in the handout "Fit Folks Need Fit Foods," pages K-15 and K-16.

Nutrients are related to food groups as follows:

Bread and Cereal	Carbohydrate, vitamins, minerals
Fruit and Vegetable	Carbohydrate, vitamins, minerals, water
Milk and Cheese	All nutrients
Meat, Poultry, Fish, and Beans	Protein, fat, vitamins, minerals

Activities: Nutrition and Physical Fitness

Procedures	*Materials needed*
1. Offer the students their choice of one-half of a small banana, one-half of an orange, or ½ cup of orange segments. After they have eaten these foods, ask them to run in place until they think they have used as many calories as were in the orange or banana pieces they ate. As the students complete their running, explain that the	Oranges Bananas Orange segments (enough for each student to have half a piece of fruit or ½ cup of segments)

Procedures	Materials needed
fruit contains approximately 40 calories per serving. An average fourteen-year-old girl or boy, running at a moderate speed, will use about nine calories per minute. Therefore, the calories in the fruit will provide enough energy for a person to run nearly 4½ minutes. Explain to the students that calories are a way of measuring the fuel their bodies need. To be physically fit, one must have the right number of calories. It is equally important to obtain these calories from the right kinds of foods. One part of keeping fit is establishing and maintaining good eating habits.	
2. Ask the students to name the six nutrient groups. List them on the chalkboard (protein, carbohydrate, fat, vitamins, minerals, and water). Ask the students to name the four food groups (Meat, Poultry, Fish, and Beans; Milk and Cheese; Fruit and Vegetable; and Bread and Cereal). List these names on the chalkboard. Ask the students to designate which nutrients are associated with each food group and, using colored chalk, make note by drawing a line from the food group to the nutrient listed on the chalkboard. (Refer to the chart in "Key Facts.")	For a review of the six nutrient groups, show the film *Nutrients: The Movie,* which is available on a free-loan basis from: The Nutrition and Food Service Education Resource Center 321 Wallace Avenue Vallejo, CA 94590 Telephone: 707-557-1592
Remind the students of the importance of eating a variety of foods every day. Meals should consist of foods such as those from the four food groups, which contain a balance of nutrients.	Colored chalk
Emphasize that good eating habits involve not only getting adequate amounts of nutrients each day but also being careful about excessive intakes of certain foods, particularly of fat-, sugar-, salt-, and calorie-rich foods. There are many ways that a person's physical fitness is affected by what he or she eats. Distribute the handout "What You Eat Is What You Get." Discuss this topic. Note again that it is not only a lack of nutrients and food, but excesses as well, that affect one's physical fitness and appearance.	Handout: "What You Eat Is What You Get," page K-10
Note how often overweight is a consequence of excess food intake. Discuss the relationship of obesity to a person's physical fitness and appearance. (Refer to the information in "Key Facts.")	
3. Ask the students to think about the last meal they ate. Have them complete the "Most Recent Meal" work sheet, using the nutrient and food group lists on the chalkboard as a reference. On the basis of the results, ask the students whether they feel that their meal prepared their bodies for the morning's or afternoon's activities. Discuss this topic.	Work sheet: "Most Recent Meal," pages K-11 and K-12
4. Tell the students to think about what they have learned about good nutrition habits and physical fitness. Write the title "Guide to Good Eating for Health and Fitness" on the chalkboard or use the overhead transparency. Ask the class to suggest guidelines for good nutrition habits for health and fitness. Help the students to complete the list, using the handout "Guide to Good Eating for Health and Fitness" as your reference. Distribute the handouts when the list is completed. Emphasize that healthful eating is an important part of feeling good, looking good, and having plenty of energy. Feeling good and having plenty of energy make being active fun, and being active and eating well go hand in hand with good health.	Transparency master: "Guide to Good Eating for Health and Fitness," page K-13 Handout: "Guide to Good Eating for Health and Fitness," page K-13 (The transparency master and the handout are the same.)
5. Inform the class that not only the kind of food eaten but also when it is eaten are important for physical fitness. Eating on a regular basis is important to provide nutrients and energy to the body in a	

Procedures	Materials needed
consistent way and to prepare the body to function until the next meal. Ask whether anyone has ever skipped a meal. How did he or she feel as time went on? (Hungry, tired, listless, unable to concentrate are possible answers.) The human body needs a supply of nutrients and energy on a regular basis to run efficiently. Even if a person eats nutritious foods, eating one huge meal per day will not be enough. At a minimum, three regularly spaced meals are recommended, *including* breakfast. Ask the students why breakfast is important (because it has been a while since the last meal; because people need to prepare for the day to come). Explain to the class that another way to divide meals during the day is to have three small meals and three nutritious snacks. Ask the class to suggest nutritious snack ideas. (A good guideline for a snack would be to choose an item from two of the four food groups.) Ask what an important caution for eating six meals might be. (Do not consume excess calories; do not consume high-fat or high-sugar snacks.)	

Activities: Nutrition and the Athlete

Procedures	Materials needed
1. Write the words *physical conditioning* and *athletic training* on the chalkboard. Ask the students what they do to keep active. List the activities on the chalkboard under the appropriate heading. Are any students involved in organized sports programs? Are they planning to be? Point out that there is no question that good nutrition and physical fitness go hand in hand. The generally healthy individual consuming a normal diet, such as suggested in a "Guide to Good Eating for Health and Fitness," receives all necessary nutrients for a physical conditioning program. However, athletes in training have special needs.	
2. Ask the students to imagine that they will be involved in long distance running or in a competitive sport. What changes or additions should they make in their current diet? Distribute the "How Should I Change My Diet?" work sheet and have the class complete it. Discuss the students' responses, using the handout "Fit Folks Need Fit Food" as a reference. Distribute these handouts after the discussion.	Work sheet: "How Should I Change My Diet?" page K-14 Handout: "Fit Folks Need Fit Food," pages K-15 and K-16

Evaluation

1. Have the students complete the work sheet "Three Diets," pages K-17 and K-18, and discuss their answers.
2. Ask what the students have learned about the effect of their own food choices on their physical appearance or fitness. Discuss any effects this lesson has had or may have on the students' food choices.

Food Service Involvement

1. Ask the food service staff to discuss what effects proposed budget cuts on school breakfast and lunch programs could have on the health and physical fitness of the students. Have the class brainstorm ways in which these policy decisions could be changed.

2. Arrange, if your school has a breakfast program, to have someone from the food service staff discuss the importance of breakfast, describe how the School Breakfast Program works, and explain the program's results in terms of less absenteeism, increased attention span, and less irritability of students who participate.
3. Ask the food service manager for copies of the breakfast menus. Have the class review them for completeness of the new food groups represented, nutrients supplied, and evidence of excess amounts of sugar, salt, fat, or calories. Have the class make recommendations for improvements in breakfast guidelines and discuss ways in which these regulations might be changed.

Notes

Answer Key:

"Three Diets," pages K-17 and K-18

1. Joanna is hungry, restless, tired, and listless, and unable to concentrate because she did not eat enough in the morning and because what she ate were the wrong kinds of foods. Breakfast foods high in sugar or fat and snacks high in sugar do not provide enough calories and nutrients to last until lunch. Foods high in sugar provide only a short-lived energy boost.

   Carol is hungry, restless, tired, listless, and unable to concentrate because she has had no food since dinner the night before.

   Howard is alert, able to concentrate, and slightly hungry because he ate a good, well-balanced breakfast containing a food from each of the four food groups.
2. No. Constipation and other intestinal disorders may occur.
3. Not enough protein may cause fatigue, poor appearance, decreased attentiveness, or lowered resistance to disease and infection.

   Not enough vitamins may cause low resistance to disease and infection, fatigue, decreased growth, or lack of energy.

   Not enough iron or calcium causes health problems. A lack of iron may cause anemia, fatigue, or decreased attentiveness. A lack of calcium may cause bone and teeth problems.

   Excess fat may cause overweight or heart disease.

   Excess sugar may cause overweight or caries.

TOPIC: FOOD CHOICES

Lesson 3. Selecting a School Lunch

An information acquisition lesson designed to help students select a school lunch that meets recommended nutrient needs

Objective

After completing this lesson, students should be able to select a school lunch based on the National School Lunch Pattern requirements and list one nutrient provided by each component of the school lunch pattern.

Key Facts

School food programs include the National School Lunch Program, the School Breakfast Program, the Child Care Food Program, the Special Milk Program, and the Summer Food Service Program for Children.

The National School Lunch Program serves nutritious, low-priced meals to students attending participating schools and residential child care institutions. Students from low-income families may receive lunches free or at a reduced price. Federal and state funds and federal food commodities are provided to assist schools in the lunch and breakfast programs.

Lunches served at school are planned to meet the guidelines set by the United States Department of Agriculture (USDA). The school lunch pattern is based on the needs of an average boy and girl, aged nine to twelve years (refer to Group 4 in "The School Lunch Pattern," page K-21). To meet the food and nutrition needs of all children better, the USDA recommends, but does not require, that food portions be adjusted by age or grade group. If portions are not adjusted, school lunch programs must provide to all children the food portions listed for Group 4 in "The School Lunch Pattern."

Students in junior high school have the option of choosing three of the five lunch components instead of taking a complete lunch: meat/meat alternate, two vegetables and/or fruit, bread/bread alternate, and milk. This option is called offer versus serve.

Appendix B contains a summary of the background and philosophy of the National School Lunch Program. "You and Nutrients," Appendix G, provides more detailed information about nutrients and can be used as teacher background information or as a student handout.

The chart below, "Nutrients Provided by the School Lunch Pattern," illustrates the nutrient contribution provided by each component of the school lunch pattern.

Nutrients Provided by the School Lunch Pattern

School Lunch Pattern Component	Major Nutrients Provided
Meat or Meat Alternate	Protein, fat, minerals (especially iron), and vitamins (especially B vitamins)
Vegetable and/or Fruit	Vitamins (especially vitamins A and C) and minerals
Bread or Bread Alternate	Carbohydrate, protein, vitamins (especially B vitamins), and minerals (especially iron)
Milk	Protein, carbohydrate, vitamins (especially vitamins A and D and riboflavin), and minerals (especially calcium)

Activities

Procedures	*Materials needed*
1. Ask the students to raise their hands if they have eaten lunch or are planning to eat lunch today. Ask for volunteers to name foods they ate for lunch or are planning to eat for lunch. Select a sample lunch menu and write it on the chalkboard.	

Procedures

Show the film *Nutrients: The Movie*. Distribute the handout "Nutrients for You," and explain to the students that the six nutrient groups that the human body needs to function properly are listed. Ask the students to read the handout; then review the functions and food sources of the six nutrient groups with the students. Using this information, discuss which nutrients are provided in the sample lunch shown on the chalkboard.

2. Remind the students that no single food has all the nutrients needed for good health and that it is important to select a wide variety of foods. A guideline for selecting foods to meet these nutrient requirements is that foods can be grouped together according to their nutrient content. Then it can be determined how many foods from each group are needed (on the average) to meet a person's daily requirement of nutrients. The four food groups (described in Lesson 1) are one way to group foods to help a person meet his or her daily requirements. In addition to the four food group system, the National School Lunch Program has established guidelines to help students in selecting a lunch by placing foods in groups of similar nutrients.

Distribute the handout "The School Lunch Pattern." Explain to the students that this pattern consists of *five* components. If one food from each component (group) is selected in the amount listed, it is possible to obtain approximately one-third of the daily nutrient requirement. (This calculation is based on the nutrient needs of a student nine to twelve years of age.)

Write a summary of the five components on the chalkboard:

Component	Amount
I. Meat/Meat Alternate	2 ounces (56 g)
II. Vegetable/Fruit	¾ cup (180 g)
III. Vegetable/Fruit	
IV. Bread/Bread Alternate	1 per day 8 per week
V. Milk (fresh, fluid)	8 ounces (240 mL)

Ask the students to compare the five food components with the four food groups previously studied. Ask the students what nutrients are provided by each of these components. Refer to the example at the top of the next page.

Ask the students to note on their handout that additional recommendations are made for the vegetable/fruit group. For school lunches to meet the recommended amount of nutrients, it is suggested that the lunches include:

- A vitamin A vegetable or fruit at least twice a week
- A vitamin C vegetable or fruit at least two or three times a week
- Several foods for iron each day

Materials needed

Film *Nutrients: The Movie,* available on a free-loan basis from:

The Nutrition and Food Service
Education Resource Center
321 Wallace Avenue
Vallejo, CA 94590
Telephone: 707-557-1592

Handout "Nutrients for You," pages K-19 and K-20

(Or you may use "You and Nutrients," Appendix G, if desired.)

Handout: "The School Lunch Pattern," page K-21

Example

School Lunch Pattern Component	Nutrients	Food Group
I. Meat/Meat Alternate	Protein, iron, and B vitamins	Meat, Poultry, Fish, and Beans Group
II. Vegetable/Fruit III.	Vitamins (especially vitamins A and C) and minerals	Fruit and Vegetable Group
IV. Bread/Bread Alternate	Carbohydrate, protein, iron, and B vitamins	Bread and Cereal Group
V. Milk	Protein, calcium, riboflavin, and vitamins A and D	Milk and Cheese Group

Procedures	*Materials needed*
3. Distribute the handout "Food Sources of Vitamin A, Vitamin C, and Iron" to the students. Using the handout, ask the class to help you evaluate the sample lunch menu on the chalkboard. How many of the five food components were included, and what foods provided sources of vitamin A, vitamin C, and iron? Would this menu supply one-third of the recommended daily nutrient requirements (using the National School Lunch Program guidelines)?	Handout: "Food Sources of Vitamin A, Vitamin C, and Iron," pages K-22 and K-23
4. Ask the students to list what they ate for lunch yesterday or today on the work sheet "Lunch Scoreboard" and to list how many of the five school lunch components were in their lunches. What foods provide sources of vitamin A, vitamin C, and iron? Have the students add their scores and compare the results. What components were missing most often? Which were easiest to fill?	Work sheet: "Lunch Scoreboard," page K-24
Inform the class that the school lunch menu is planned based on these five food components. Distribute a copy of your school's lunch menu for one week and the work sheet "Menu Evaluation." Ask the students to use the work sheet to determine whether the school lunch menu for that week satisfies the National School Lunch Program requirements.	Work sheet: "Menu Evaluation," page K-25
Fill in a sample day's evaluation for the students. See the following sample menu: Hamburger on bun — Sliced peaches, ¼ cup Tossed salad, ½ cup — Low-fat milk, 8 ounces	
If help is needed in recording the amounts of menu items served, request assistance from the school food service staff. (This activity can be done in pairs, groups, or as a group class activity.)	

Day	Component			
	I Meat 2 ounces	II, III Vegetable/Fruit Total of ¾ cup	IV Bread 1 serving per day and 8 per week	V Milk 8 ounces
Monday	Hamburger patty - 2 ounces	Salad - ½ cup Sliced peaches - ¼ cup	1 hamburger bun	Low-fat milk - 8 ounces

Procedures	Materials needed
If preferred, or if a school lunch menu is not available, this menu evaluation list may be used to evaluate a la carte lunch items available to the students or lunches brought from home. *Optional Activities:* Inform the students that a new option has been made available when school lunches are served. This option, called offer versus serve, can be used in junior high schools, but it is not mandatory. (It is mandatory in high schools). *Offer versus serve* means that every student is offered the five food components, but the student is not required to accept any food item that he or she does not intend to eat. If a minimum of three of the food items are selected by the student, the meal satisfies the school lunch program requirements for reimbursement. The lunch is still priced as a unit. The student who selects three items pays the same amount as the student who selects four or five items. The vegetable/fruit component consists of a minimum of two food items, and the two (or more) food items must total a minimum of ¾ cup. The two food items may include two vegetables, two fruits, or one vegetable and one fruit. The variety of milk offered must include unflavored low-fat or skim milk or buttermilk. Whole milk or chocolate milk may be offered as an additional choice. Milk is one of the five food components and is not required to be selected as one of the three minimum food items. The students are not required to select *any* one of the five food components. Discuss the pros and cons of this option with the students (for example, nutrient content of the meal selected, less waste, cost).	

Evaluation

Have the students complete the work sheet "What's for Lunch?" page K-26. Using the handout "The School Lunch Pattern" as a guide, the teacher, food service manager, or students may evaluate the menus.

Food Service Involvement

1. Invite a member of the food service staff to assist you in presenting this lesson.
2. Invite a food service staff member to a question and answer session after the lesson has been completed. Some questions that the manager could address are as follows:
   a. What is the difference between a "reimbursable meal" and an "a la carte lunch"?
   b. What are the advantages and disadvantages of the offer versus serve option?
   c. What is the School Breakfast Program?
   d. What commodity surplus foods are available, and how do they affect the school lunch menu?
   e. What are other considerations when planning menus? (Possible answers are color, temperature, texture, equipment available, student likes and dislikes, food cost, or availability of foods.)
3. Have the students work together with the food service staff to plan a future school lunch menu.
4. Prepare a questionnaire to determine the student body's opinion of the offer versus serve system.
5. Provide an opportunity for students to visit the site where school lunches are prepared.
6. Establish a youth advisory council to work with the school food service staff. This organization is composed of students who have an interest in learning about the school food service program and health and nutrition. In Appendix H the steps involved in organizing a youth advisory council appear.

TOPIC: FOOD CHOICES

Lesson 4. Exploring Feelings About Selecting a School Lunch

An open-ended discussion lesson through which students have an opportunity to share ideas, opinions, and feelings about selecting a school lunch

Activities

Procedures	*Materials needed*
Discussion Sequence	
1. Inform the students that the purpose of this lesson is to share ideas about selecting a school lunch.	
2. Hand out copies of the story "Ray's Problem" and tell the students that, after they have read the story, they will have an opportunity to share their ideas about what the boy in the story, Ray, should do.	Story: "Ray's Problem," page K-27
3. As students are reading the story, show the transparency "Ray's Luncheon Choices" or write *choices* on the chalkboard.	Transparency master: "Ray's Luncheon Choices," page K-28
4. Present the discussion rules outlined in the "Introduction to the Curriculum." Restate the discussion question: What should Ray do?	
5. Conduct the discussion.	

Lesson 5. Defining Calories

An information acquisition lesson designed to help students recognize that a calorie is a measure of the energy value of food

Objective

After completing this lesson, students should be able to define *calorie* and name the three energy-containing nutrients.

Key Facts

Energy is defined as the ability to do work. Many forms of energy exist: mechanical, chemical, electrical, light, kinetic, and potential. During any transfer of energy, some of the energy is lost as heat. Heat is the form of energy that all other forms eventually become. Heat energy is commonly measured by the unit calorie. One calorie (c) is the amount of heat needed to raise the temperature of one gram of water one degree Celsius. The unit of measurement used in the science of nutrition is the Calorie (c), or kilocalorie or kcal (pronounced kā kălz). One Calorie (C) is the amount of heat needed to raise the temperature of one kilogram of water one degree Celsius. The calorie (c), which is commonly used to refer to food and work energy, is actually a Calorie (kilocalorie or kcal). In this curriculum guide, *calorie* is used synonymously with *Calorie*. You may wish to alert your students to the actual difference between the two and the trend toward calling Calories *kcals*.

Work energy is the energy used when the human body does work. Much of this energy is given off as heat (this is why exercise makes the body warmer), and some of the energy goes to doing the actual work. This energy given off by the body (as work plus heat) is also measured in calories. Hence, we say that doing a certain job requires a certain amount of calories. At rest, the body uses up—and therefore gives off—energy (the energy given off is in the form of heat, which is why our bodies stay at a certain temperature—around 98.6° Fahrenheit [38° C]). This energy is required for the body's *metabolism,* the constant internal processes that keep our hearts beating, make our nerves active, build new cells, and so forth. Therefore, the body's need for (and expenditure of) energy—or calories—is the sum of two processes: *metabolism* plus *work.*

Food energy is the chemical energy food contains in the form of chemical bonds linking the molecules in the food together. When the food is burned (such as when the body metabolizes the food), this energy is given off as *heat,* and the amount of heat given off when a particular food is burned is measured as calories. Hence, each food is given a certain caloric value.

The energy (calories) contained in a given food is the sum of the calories in the three energy-containing nutrients the food is composed of. Protein contains *four* calories per gram; carbohydrate contains *four* calories per gram; and fat contains *nine* calories per gram. Therefore, foods containing a lot of fat are high in calories.

Fats, refined sugars, honey, syrup, and other sweets are concentrated sources of energy which have many calories in a small amount of food. Often, foods high in refined sugars and/or fats do not have very many other nutrients. The end result is a food with calories but few nutrients, or empty calories. When these foods are chosen in place of more nutritious foods, the diet may not meet the body's nutrient needs. If these foods are chosen in addition to more nutritious foods, then the extra calories may lead to weight gain. Examples of foods containing empty calories are as follows:

Soft drinks
Candy
Sugar
Syrups
Jellies, jams, or preserves
Honey
Sweetened gelatin
Doughnuts and other sweetened baked goods
Cakes and cookies made with refined flours
Pretzels
Chips and other fried snacks

Another source of empty calories is alcohol, which provides seven calories per gram and minimal amounts of nutrients. In addition to the previously listed concerns about empty calories, alcohol is potentially harmful physiologically, socially, and psychologically. Alcohol is *not* a nutrient; it is not necessary for normal bodily functioning.

Weight reduction occurs only when fewer calories are taken into the body than are used up. The following are other facts to be considered about weight reduction:

- Any combination of foods that, when eaten, result in this deficit of calories will cause weight loss. However, a good calorie-restricted diet should include a normal balance of foods from the four food groups, without undue emphasis being placed on any one food or group of foods. This way the diet can, with increased portion sizes, serve as the maintenance diet once a person loses the desired amount of weight.

- Many fad diets place excessive emphasis on a very small number of foods or on certain groups of foods. These diets are often nutritionally inadequate and do not teach correct eating habits (that is, eating a variety of foods); hence, these diets are not recommended.
- The maintenance of ideal weight is a balance between food eaten and energy used. Physical activity and sensible eating contribute to successful weight control.

Activities: Calorie Information

Procedures	*Materials needed*
1. Write the word *calorie* on the chalkboard. Ask the students what they think of when they hear this word. (Responses probably will be related to fat, fattening foods, and other negative connotations.) Point out that we often think of calories in a negative way, especially how they affect the shape of our bodies. Inform the students that calories are neither positive nor negative but simply a measure of energy.	
2. Hold up a sheet of newspaper for the class to see. Crumple it into a ball. Light one end with a match. Place the newspaper in a nonflammable pan (aluminum) and let it burn to ash. Ask the students to observe the leftover ash. Ask the students the following questions: a. What happened while the newspaper burned? (Heat was released.) b. If I held my hand over the burning paper, what would happen to my hand? (The hand would become warm.) Inform the students that *heat* is a form of *energy*, and reinforce the concept that the energy is released in the form of heat. Ask the students why the pile of ashes is so much smaller than the sheet of newspaper. Guide the students' responses toward the explanation that part of the paper has been changed to heat (a form of *energy*). Inform the class that the amount of heat (or energy) released by the paper is measured in *calories*. A calorie is a yardstick to measure energy. A calorie can measure the amount of energy released by burning paper; it can measure the amount of energy our bodies are using; and it can measure the energy in the food we eat. Ask the class why we *need* energy (to keep our hearts beating, to breathe, to keep our brains and nerves functioning, to work, to exercise, and to play). Ask where we get energy (from food). Food is our source of energy. The number of calories in food is important because this amount indicates how much energy a food can supply to our bodies. Write the word *energy* on the chalkboard near the word *calorie*. Connect the two with a double arrow. Calorie ←→ Energy	Newspaper Aluminum pan Match
3. Have the students pass to each other five various empty food containers such as a milk carton, a can of green beans, a cereal box, a can of tuna, and a yogurt carton which have labels on them. Ask the class to name the product and tell how many calories it contains per serving.	Empty food containers

Procedures	Materials needed
Ask the students how they made their decision about the caloric content of the individual foods. (The label lists the number of calories the food contains per serving.)	
Ask the students where they think the calories in food come from. Inform them that the caloric value of each food is determined by the energy-providing nutrients. Ask the students to name these nutrients (carbohydrate, protein, or fat). Write these names in a column on the chalkboard. In a separate column, write the words *vitamins, minerals,* and *water.* These nutrients help us get the energy from the first three.	
Tell the class that not all energy-providing nutrients are equal. Use the "Calories and Nutrients" transparency to illustrate the caloric contribution of each nutrient and the caloric content of fat compared with protein and carbohydrate.	Transparency master: "Calories and Nutrients," page K-29
Emphasize that foods containing a large amount of fat are usually high in calories. Ask the following questions: a. What foods contain fat (oil, butter, lard, meat, cheese, and so forth)? b. What are some foods that have protein (meat, milk, eggs, and so forth)? c. What are some foods containing carbohydrate (bread, sugar, fruit, and so forth)? d. Who can name a food with all three energy-providing nutrients (whole milk)?	
4. Write the words *empty calorie* on the chalkboard. Ask the students what they think an empty calorie is. Explain that fats and refined sugars, honey, syrup, and other sweets are *concentrated sources of energy.* That is, they have many calories in a small amount of food. And, often, foods high in refined sugars or fats do not have very many other nutrients. The end result is a food with calories but with few nutrients, or empty calories.	
Discuss the negative results of eating too many empty calorie foods. These foods can fill a person, but they contain few nutrients. Then one is too full for the foods that will provide nutrients. A person risks being undernourished.	
Distribute the work sheet "How Can I Get 150 Calories?" Point out that this is a comparison of four different liquids; the graphs are compiled for 150 calories of each. Ask the students to complete the work sheet, emphasizing that there is no right answer to question five on this sheet. Discuss this topic when the work sheet is completed.	Work sheet: "How Can I Get 150 Calories?" page K-30
Ask the students to give examples of other empty calorie foods. (See the list in the "Key Facts" section.)	
Alert the class that another source of empty calories is *alcohol.* Alcoholic beverages generally provide little more than empty calories, which fill a person but provide few nutrients. Ask why alcohol is not a nutrient even though it provides calories. (It is not necessary for normal bodily functioning. In addition, there is harm in excessive use of alcohol physiologically, socially, and psychologically.)	

Activities: Weight Control

Procedures	Materials needed
1. Ask the students what would happen if they ate foods containing more energy than they needed. (The extra energy would be stored as fat, and they would probably notice a weight gain.) Ask the students whether this has ever happened to them. The idea is to get a balance between the number of calories taken in and those expended. There should be plenty of energy for the body to do the things it needs to do but not so much that the extra energy is stored as fat.	
2. Ask the students whether they know what their ideal weight is. Distribute the "Height and Weight Chart." Assist the students in using the chart. Distribute the "Food Diary" work sheet. Have the students record their ideal weight and recommended calorie intake. Explain that these recommended calorie levels are averages.	Handout: "Height and Weight Chart," page K-31 Work sheet: "Food Diary," pages K-32 and K-33
Ask the students to keep track of the food they eat for the next two days. When this assignment is completed, have the class fill in the calorie count column, using the "Nutrient Composition Table." Have the students compare the total calories consumed with the recommended level. Ask the class members to circle the empty calorie foods. Total the number of empty calories. Compare that number with the total calories. Discuss the results.	Handout: "Nutrient Composition Table," Appendix C
3. Remind the students that what they eat influences their weight. Ask them whether they can think of anything else that influences their weight (the amount of calories they burn, the amount of physical activity they do). Physical activity is as important as food intake in the effort to maintain weight. When people are physically active, they are using calories. The amount of energy it takes to do an activity is measured in calories. Ask students the following questions: a. What are some activities that use many calories? b. What are some activities that use few calories?	
Show the "Calories and Activity" transparency. Ask the class to assist you in completing the transparency.	Transparency master: "Calories and Activity," page K-34
Compare the totals. Point out that when we are energetic, we use and need more calories. When we are less active, we need fewer calories. *Optional activity:* Have the students interview a family member about the number of hours a day he or she spends doing various activities and then calculate the number of calories used.	

Activities: Diets

Procedures	Materials needed
1. Explain to the students that dietary fads occur frequently. Some of these diets require a person to eat only one kind of food, such as rice. Others allow people to eat as much as they want—as long as they consume protein, fruit, or another kind of food. Most of the diets promise one thing: By following their requirements, a person will lose more weight faster than with any other diet. This claim is not	

Procedures	Materials needed
true. There is only one way to lose extra body fat. That is, eat less and exercise more. But to stay healthy, it is still important to eat a basic variety of foods, even though you are cutting down on the amount of these foods. And it is especially important to eat less of the high calorie, low nutrient foods such as sodas, candy, cookies, cakes, and fried snacks. If you think you want to lose weight, the first thing to do is to see a doctor. If he or she agrees with you, then go ahead with a weight-loss program. But remember that, to lose weight, you should eat less and exercise more.	
2. Distribute "Finding the Diet That Will Work for You." Review and discuss this handout.	Handout: "Finding the Diet That Will Work for You," page K-35
Collect information about various diets from newspapers, popular magazines, or your school or public library. You also may want to contact a local dietitian to help provide information. Divide the students into task forces of two or three people. Give each group a diet to investigate and report to class. Have each group find out the following: a. What does one eat on this diet? b. What foods are not allowed on this diet? c. How often is a person allowed to eat? d. How much weight loss does the diet promise? In how long a time? e. Does a person have to buy any special product or gadget to go on the diet? f. Who wrote the diet, or where is it from? If the diet is from a book, how much does the book cost? Go through the "Finding the Diet That Will Work for You" checklist to help evaluate the diet. Have each group write a one-page summary.	Examples of current diets
3. When you are planning a lesson on *multiplication and division of whole numbers,* you may wish to use the following nutrition activities in helping students to achieve the subject-matter objective: a. Inform the students that a calorie is used to measure energy and that you need energy for all bodily functions, including exercise. Ask the class members whether they could function without calories from food. (They could not because food provides the energy needed for activities. Energy is measured in calories.) Food energy is used up at different rates, depending on the type of activity involved.	
b. Have the students solve basic calculations in multiplication and division, using the word problems on the "Calories and Exercise" work sheet.	Work sheet: "Calories and Exercise," page K-36
4. When you are planning a lesson on *word problems,* you may wish to use the following nutrition activities in helping students to achieve subject-matter objectives: a. Inform the students that a calorie is used to measure energy. Inform them that they need calories for all bodily metabolism and physical activity. They must have a given amount, depending on the needs of the body.	

Procedures	Materials needed
b. Have the students solve the word problems on the "Pack a Lunch" work sheet.	Work sheet: "Pack a Lunch," page K-37
5. When you are planning a lesson on *addition of whole numbers,* you may wish to use the following nutrition activity in helping students to achieve the subject-matter objective:	
a. Ask the students how often they use fast food establishments. Distribute the "Calories in Fast Foods" chart and review it with the class. Have the class answer word problems relating to fast foods on the "Fast-Food Friends" work sheet.	Chart: "Calories in Fast Foods," page K-38 Work sheet: "Fast-Food Friends," page K-39

Evaluation

1. Have the students complete the "Quiz," page K-40, and discuss their answers.
2. Ask the students what they learned about food choices, exercise, and weight control. Discuss the effects this lesson has had or may have on the students' food choices or exercise habits.

Food Service Involvement

Request that the food service manager provide school lunch menus and assistance to students to calculate the number of calories in the school lunches. This information can be printed in the school newspaper in a column about nutrition or weight control.

Notes

Answer Key:

"Calories and Exercise," page K-36

1. 15,400 calories
2. Less, 400 calories
3. 14,000 calories
4. 56 minutes
5. 472 calories
6. 795 calories
7. 175 days
   105 days

"Pack a Lunch," page K-37

1. Varies
2. Varies
3. 510 calories
4. 504 calories
5. 375 calories

"Fast Food Friends," page K-39

1. 1,106 calories
2. 97.5 grams
3. 461 calories
4. 46 grams
5. 645 calories
6. 1,694 calories

"Quiz," page K-40

1. We need energy to keep our bodies running properly—to work, to exercise, and to play.
2. Protein, carbohydrate, and fat, which come from the foods we eat, provide energy.
3. A calorie is important because it measures the amount of energy we get from food as well as the amount of energy our bodies use.

Lesson 6. Exploring Values About Favorite Foods

A values awareness lesson designed to help students explore their values about foods they like

Activities

Procedures	*Materials needed*
1. Inform the students that, during this activity, they will be making a "What Do I Think About Foods?" collage, showing their favorite foods. This activity may be done as a homework assignment.	
2. Distribute the silhouettes, giving the appropriate one to each student. Ask the students to (1) select pictures of foods they like from magazines, cut the pictures out, and glue them, collage style (edges overlapping), on the appropriate silhouette; or (2) draw pictures of foods they like on the silhouette. (Plain paper without outlines may be used.) Divide the class into groups of six. Distribute the materials. Allow time for the students to construct their collages. Explain to the students that an activity based on their choices will follow.	"Silhouette of Girl's Head," page K-41 "Silhouette of Boy's Head," page K-42
3. Ask volunteers to show their silhouettes to the class and name some of the foods shown.	
4. Write the following sentence on the chalkboard, and ask the students to copy it three times on the back of their silhouette or a blank piece of paper: (Name of food) is (are) a favorite food of mine because . . .). Have the students complete the sentences for three of the foods they chose. Have the class members list reasons besides, "It tastes good." Tell the students to be specific in stating their reasons, such as ". . . because it tastes sour." Demonstrate this approach for the students. For example, "I cut out a picture of grapes. They are a favorite of mine because of their cool taste."	
5. Invite student volunteers to read one of their sentences. Following each student's comments, respond by identifying one of his or her values about that food. The following are examples of teacher's possible responses: a. If the student says, "Grapes are a favorite food of mine because of the cool taste," the teacher could say, "It seems to me that one of your values or one of the things important to you about some of the foods you eat is that they are refreshing to the taste. Is that correct?" The student may answer yes or no. b. If the student says, "Crackers are a favorite food of mine because they are crunchy," the teacher could say, "It seems to me that one of your values or one of the things important to you about some of the foods you eat is that they are hard and can be chewed. Is that correct?" The student may answer yes or no. c. If the student says, "Spinach is a favorite food of mine because it is good for people," the teacher could say, "Would it be correct to say that nutritional content is one of your values about food?" The student may answer yes or no.	
6. When each student, or as many as time permits, has responded, collect the collages and hang them around the room for a colorful display entitled "What Do I Think About Foods?"	

Food Service Involvement

Ask the food service manager to display these collages in the cafeteria.

Lesson 7. Eating Whole Grains

An information acquisition lesson designed to help students identify one reason to include whole grains in their diet

Objective

After completing this lesson, students should be able to state one reason to include whole grains in the diet.

Key Facts

Dietary fiber is generally defined as the sum of the indigestible carbohydrate and carbohydrate-like components of food. These nondigestible substances provide bulk in the diet and aid elimination. Dietary fiber can be found in whole grain cereal products, vegetables, and fruits. Refer to the "Vocabulary Sheet," page K-44, for definitions of terms used in this lesson.

When grains are refined and the bran and germ are removed, not only is fiber lost but also much of the protein, vitamins, and minerals is lost as well.

Nutrient	Loss in percent
Thiamin	97
Riboflavin	68
Niacin	88
Pyridoxine (a B vitamin)	94
Protein	25

Enrichment replaces some thiamin, riboflavin, niacin, and iron lost in processing.

Including more fiber in the diet helps to reduce the symptoms of chronic constipation.

It has been claimed that the incidence of a number of diseases, most notably cardiovascular disease, cancer of the colon, diverticulosis (ballooned pockets in the wall of the large intestine), and diabetes is inversely related to the amount of dietary fiber consumption in a population. Many hypotheses have been proposed to explain how a lack of fiber could contribute to the development of these diseases. Although these theories are plausible, they have not been proven experimentally.

Dietary fiber consumption has decreased in developed countries since the turn of the century. Moderate increases in dietary fiber are recommended and can be achieved if people increase their consumption of vegetables, fruits, and whole grain breads and cereals.

Activities

Procedures	*Materials needed*
1. Give the students the "Rebus Puzzle" to solve and discuss it.	Work sheet: "Rebus Puzzle," page K-43
2. Ask for student volunteers to define orally the word *grain* (examples: cereals, what you make bread with, grasses, or plants). Ask the class to give examples of kinds of foods that contain grain (examples: bread, cereals, crackers, noodles, or rice). Ask the class to name different kinds of grains (examples: wheat, corn, oats, rye, or barley).	
Display samples of different kinds of grains, cereals, and flours in dishes. Label each of the samples and arrange them on a table. Tell the students that they may touch and smell them. If you wish, grind wheat into flour using a blender, food processor, grain mill, or mortar and pestle to illustrate the milling process.	Samples of different kinds of cereals and flours such as wheat berries, whole wheat flour, brown rice, white rice, instant rice, rolled oats, ground oats, instant oatmeal, whole wheat noodles, white flour noodles, spinach noodles, high protein spaghetti, or macaroni Blender, food processor, grain mill, or mortar and pestle
3. Distribute the "Vocabulary Sheet." Explain the term *whole grain* to the students. Inform them that not all grains used in preparing foods are whole grains. Use the transparency showing the whole wheat kernel to point out the three parts of the grain. Explain to the	Work sheet: "Vocabulary Sheet," page K-44 Transparency master: "Whole Wheat Kernel," page K-45

Procedures	*Materials needed*
students that often the bran and germ are removed in milling, leaving a decreased amount of fiber. Discuss the terms *milling* and *fiber*.	
Tell the class that a loss of fiber is not the only problem connected with milling. A loss of vitamins and minerals also occurs. Explain that some vitamins and minerals—namely, thiamin (B1), riboflavin (B2), niacin, and iron—are replaced in what are called "enriched" grain products. However, some nutrients, particularly pyridoxine (vitamin B6), vitamin E, magnesium, and zinc, are not replaced. Thus, whole grains contain more of these needed nutrients than refined or enriched grains.	
4. Explain to the students that when they select foods, there is a way to find out whether the food is made from whole grains, whether it contains any dietary fiber, or whether it has any added vitamins and minerals. That way is to read the labels on the packages. Show the students the "Cereal Box Labels" transparency, pointing out the list of ingredients, the list of vitamins and minerals, and the fiber content. Explain that the numbers next to the vitamins and minerals are percentages of the U.S. RDA of that particular nutrient. The higher the percentage, the more of that nutrient a serving of the cereal provides. (The U.S. RDA is comparable in most nutrients to the Recommended Dietary Allowances for an adult male.)	Transparency master: "Cereal Box Labels," page K-46
Tell the class that the small letter *g* stands for grams. To illustrate approximately how much a gram is, show the students a small paper clip, informing them that it weighs approximately one gram.	Small paper clip
Point out that an asterisk beside a nutrient listed on a label indicates that a serving of the cereal provides less than 2 percent of the U.S. RDA for that particular nutrient.	
Encourage the students to bring a label from a favorite cereal to class. Have extra labels available for those students who do not bring one. Distribute the "Cereal Label" work sheet. Have each student complete the work sheet, using his or her own label. Discuss and compare the students' findings.	Various cereal labels Work sheet: "Cereal Label," page K-47
5. Explain that there has been a decline in the consumption of whole wheat flour and whole grain cereals in the United States since the turn of the century. Awareness of the health benefits from whole grains has been followed by an increased availability and interest in whole grain products in recent years. Ask the students whether they know of any health problems associated with decreased fiber in the diet.	
Show the transparency "Health Problems Thought to Be Associated with Low Fiber Diets." Discuss each health problem, indicating how fiber might be involved. Remind the class that the influence of fiber intake on these problems is only theoretical; no specific proof exists (see "Key Facts").	Transparency master: "Health Problems Thought to Be Associated with Low Fiber Diets," page K-48
Explain that population studies have shown that diseases such as cardiovascular disease, cancer of the colon, diverticulosis, and diabetes are more prevalent in developed countries where the average diet contains less fiber than in areas, such as rural Africa, where the fiber intake is higher.	Transparency master: "Countries with High and Low Fiber Diets," page K-49
Explain that one effect of a high fiber diet that has been proven is that the bulk provided in the diet aids the digestive system in eliminating food wastes and can help to reduce problems with constipation.	

Procedures	*Materials needed*
6. Cook or bake and compare food products which illustrate the difference between whole grain and refined grain products. The following are examples of possible foods to compare: • Whole wheat bread and white bread • Whole wheat noodles and refined noodles • Rolled oats and instant oatmeal • Brown rice and white rice Compare the appearance, taste, texture, cooking time, ease of preparation, and nutritional value.	Whole wheat bread White bread Whole wheat noodles or macaroni Refined noodles or macaroni Rolled oats, regular or quick Instant oatmeal Brown rice White rice Hot plate and pan or electric frypan or saucepot Serving utensils
7. Ask the class what other foods are good sources of fiber. Point out that most fruits and vegetables are good fiber sources in addition to the whole grain products discussed in this lesson.	
8. Distribute and then discuss the "Word Game."	Work sheet: "Word Game," page K-50

Evaluation

Have the students complete the work sheet "Whole Grain or Refined?" on page K-51, and discuss their answers in class.

Food Service Involvement

1. Have a member of the food service staff speak to the class about the whole grain foods which are included in the school lunches.
2. Make a list in class of different ways whole grain foods can be incorporated in school lunches. Discuss this list with a representative of the food service staff.

Notes

Answer Key:

"Rebus Puzzle," page K-43, Whole Grain = Fiber.

"Word Game," page K-50

1. R(ice)
2. W(heat)
3. Y(east)
4. G(rain)
5. Fl(our)
6. Star(ch)
7. B(oat)

"Whole Grain or Refined?" page K-51

Answers will vary but should include at least one of the following reasons for including whole grains in the diet:

1. Whole grains aid elimination.
2. Whole grains contain more fiber than refined grains.
3. Whole grains contain more protein, vitamins, and minerals than refined grains.
4. Whole grains may prevent certain health problems such as cardiovascular disease or cancer of the colon.

Lesson 8. Exploring Complementary Proteins

An information acquisition lesson designed to help students specify a combination of two plant foods that contain complementary proteins

Objective

After completing this lesson, students should be able to name combinations of plant foods that contain complementary proteins.

Key Facts

Protein is a nutrient found in all living matter. Protein is different from the nutrients fat and carbohydrate because it contains the element nitrogen. Proteins are composed of amino acids that are linked together into protein chains.

There are over 20 different amino acids. Of these, nine are called essential amino acids (EAAs) because they cannot be synthesized in the human body. These nine EAAs must be supplied to the body in adequate amounts from food sources. The remaining nonessential amino acids can be synthesized in the body. The nine EAAs are tryptophan, leucine, lysine, isoleucine, valine, threonine, methionine, phenylalanine, and histidine.

High-quality proteins contain all the EAAs in the amounts needed for human tissue formation and for maintaining bodily functions. High-quality proteins are normally found in meat, fish, poultry, eggs, and dairy products. Low-quality proteins that contain limited amounts of one or more of the essential amino acids are normally found in vegetables, grains (cereal, flour), seeds, nuts, and legumes (beans, peas). However, if these low-quality proteins are combined and consumed in the proper proportions, they will *complement* each other; and together they will form high-quality protein.

The terms *complete* and *incomplete* are still sometimes used in referring to proteins of high and low quality, but a protein almost never is totally lacking in one of the essential amino acids. So, most proteins are not incomplete.

A vegetarian diet is usually described as meatless. *Vegans* are persons who select a diet including only foods from plant sources, excluding all animal flesh and animal products. A lacto-ovo vegetarian diet excludes animal flesh but includes animal products such as eggs, milk, and cheese. *Ovo* refers to eggs, and *lacto* refers to milk and milk products.

A person eating a vegetarian diet can be well nourished if he or she eats a variety of plant foods and gives attention to certain critical nutrients, such as calcium, iron, vitamin B12, and zinc. The person following a lacto-ovo vegetarian diet has a nutritional advantage. Dairy products and eggs are good sources of most of these essential nutrients. Dark green leafy vegetables are sources of important nutrients such as calcium and iron. When exposure to sunlight is limited, children may receive inadequate vitamin D unless this vitamin is provided in milk or as a supplement. Vitamin B12 is not supplied when foods of animal origin are eliminated from the diet, and a vitamin B12 supplement may be necessary to meet the requirement for this vitamin. Although animal products are the best sources of zinc, whole grain breads and cereals and beans also provide this mineral.

People choose a vegetarian diet for many reasons, including religious beliefs, economic reasons, political views, health concerns, personal philosophy, humanitarian motives, peer pressure, or acceptance of a popular movement.

Activities

Procedures	*Materials needed*
1. Ask the students to raise their hands if any one of them has eaten meat today. Ask what nutrients people get from meats. (Responses should include protein.) 2. Ask the class to imagine that a national butchers' strike is taking place. Therefore, *no* meat products are available. After the class members have had time to imagine the situation, ask individual students to respond orally to the following questions:	

Procedures	Materials needed
a. What problems could this labor strike create for the diets of the American people? (Guide the students to the answer that a major source of the high-quality protein would be removed.) b. What could be done to make up for this great loss of protein? (People could find other sources of high-quality protein.) c. Where will the public find other sources of protein? (Guide the students to nonmeat source answers such as eggs, milk, cheese, grains, legumes, seeds, nuts, or vegetables.) d. Can you see a reason for knowing about different sources of protein? (Guide the students to the answer, "Yes, because for one reason or another, a meat protein source may not always be available." Also, more variety in food selection could be another good response from the students.)	
3. Distribute the "Complementary Protein Vocabulary" work sheet. Read the directions orally to the students. Show the students the "Complementary Protein Definitions" transparency and ask them to copy the definitions onto their work sheets. When the majority of the students have finished copying the definitions, explain each of the complementary protein vocabulary words. Answer any of the students' questions.	Work sheet: "Complementary Protein Vocabulary," page K-52 Transparency master: "Complementary Protein Definitions," page K-53
4. Using the "Complementary Protein Cards," explain why certain plant protein groups complement each other and why others do not. Each plant group (grains, seeds, and legumes) contains some of the EAAs, but not all of them, in adequate amounts. Therefore, if grains, for example, are low in one EAA, but legumes contain that same EAA in adequate amounts, legumes and grains combined in the right proportions would be complete and would, therefore, become (by definition) a high-quality protein. Show the "Legumes" and "Grains, Cereals, and Flours" cards. Show that when the cards are overlapped, there are no open spaces (which represent a lack of an EAA); yet each legume or grain by itself has open spaces as shown on the cards. Emphasize that if the plant protein groups are used by themselves, they offer low-quality proteins because all the EAAs are not present in adequate amounts.	"Complementary Protein Cards," pages K-54 and K-55 Directions for making "Complementary Protein Cards," page 33
5. Distribute the "Protein Sentences" work sheet. Discuss the correct answers.	Work sheet: "Protein Sentences," page K-56
6. Distribute the chart "Plant Sources of Protein." Also distribute the "Plant Sources of Protein List." Tell the students to put the plant names in the appropriate columns on the chart. If necessary, fill in a few examples. When the students are finished, show the transparency of the completed "Plant Sources of Protein Chart." Have the students correct their answers.	Chart: "Plant Sources of Protein," page K-57 Handout: "Plant Sources of Protein List," page K-58 Transparency master: "Plant Sources of Protein Chart," page K-59
7. Distribute the "Complementary Protein Combinations" handout. Review possible combinations of plant proteins that increase the quality of a protein in a meal. Discuss examples of meals shown on the handout that combine plant proteins to increase the quality of protein. Emphasize grain/legume and legume/nuts or seeds combinations. Ask the students to give other examples of possible combinations. Mention that grains and nuts or seeds can also be combined to increase protein quality but that, generally, legumes or an animal protein need to be added to obtain a high-quality protein	Handout: "Complementary Protein Combinations," page K-60

Procedures	*Materials needed*
(examples: peanut butter, wheat bread, and milk; or granola made with oatmeal, seeds, and nuts and milk). Explain that animal proteins can be added to vegetable proteins, even in small amounts, to increase the quality of the vegetable proteins. Review the examples on the "Complementary Protein Combinations" handout, and ask the students to give other examples. Explain that a person choosing a diet made up of foods from only plant sources must select foods very carefully. It is difficult to obtain adequate amounts of nutrients such as iron, calcium, and vitamin B12 unless foods are carefully selected. Adding milk and eggs to the diet decreases the risk of nutritional inadequacy. Selecting a wide variety of foods and including liberal amounts of dark green leafy vegetables are important.	
8. Hand out the work sheet "Complements from Protein." If desired, allow the students to refer to the "Complementary Protein Combinations" work sheet. Correct the papers orally or write the correct answers on the chalkboard or overhead projector.	Work sheet: "Complements from Protein," page K-61
9. Have the students find recipes using complementary proteins. Prepare some of these recipes in class, if it is possible. If kitchen facilities are not available, discuss and/or serve snacks using complementary proteins such as a mixture of roasted soybeans, peanuts, and ready-to-eat cereal squares.	Food items

Evaluation

Have the students complete the work sheet "What Is Your Complementary Protein IQ?" page K-62, and discuss their answers.

Food Service Involvement

1. Ask the food service manager to prepare complementary protein foods that the students can sample in the classroom.
2. Record the cafeteria's food offerings for a week and list the complementary proteins as they appear.
3. Have some students, if they wish, plan menus for the cafeteria staff to serve.

Notes

Answer Key:

"Protein Sentences," page K-56

1. Grains
2. Complementary proteins
3. Seeds, nuts
4. Protein
5. Legumes
6. Low-quality
7. High-quality

"Complements from Protein," page K-61

1. d
2. a
3. b
4. c
5. e

Answers will vary for questions 6 through 11.

"What's Your Complementary Protein IQ?" page K-62

1. e
2. c
3. h
4. b
5. g
6. a
7. d
8. f
9. t
10. f
11. t
12. f

Answers will vary for questions 13 through 15.

Directions for making the "Complementary Protein Cards" on pages K-54 and K-55:

1. Duplicate the cards onto heavy paper; mount them on tagboard or use 5 x 7-inch (13 x 18 cm) index cards.
2. Cut out the cards so that there will be four different cards: "Dairy Products"; "Legumes"; "Grains, Cereals, and Flours"; and "Nuts and Seeds." Cut out spaces marked *cut out.*
3. Hold two cards in front of each other. Complementary protein cards (such as "Legumes" and "Grains, Cereals, and Flours") will show no holes or open spaces. Protein foods that do not complement each other will show holes that you can put your fingers through, such as "Grains, Cereals, and Flours," and "Nuts and Seeds."
4. Notice that "Dairy Products" can be used with any of the three remaining cards to make complementary proteins.
5. Use the cards to demonstrate the principle of complementary proteins to the students.

Lesson 9. Sharing Feelings About Food

An open-ended discussion lesson through which students have an opportunity to share ideas, opinions, and feelings about food issues

Procedures

Preparation for Discussion

Several days prior to the lesson, construct three "How Do You Feel About . . .?" posters and display them in the classroom, encouraging the students to write their reactions directly on the posters. As appropriate, having the students initial their comments may be required or voluntary.

Each poster should contain a "How Do You Feel About . . .?" question as a heading. In determining which topic to use for the completion of each poster question, select three which you feel are of interest to the students and will elicit strong and diverse feelings. You may choose from the questions provided, or you may have others you want to use. Regardless of the specific types of questions, the stem should be the same: "How do you feel about . . .?" For added interest you may want to attach to your poster something to attract attention or to inform such as food wrappers, newspaper articles, menus, and so forth.

For several days prior to the lesson, display the posters and allow the students an opportunity to write their reactions on each. Provide enough space on the poster for these comments from the students. Explain that in a few days, they will have a chance to discuss verbally how they feel about one of these issues.

Discussion Sequence

1. Inform the students that the purpose of the lesson is to give them a chance to express how they feel about food choices.
2. Determine the discussion question for this lesson by reviewing the comments on each poster and selecting the topic which appeared to generate the strongest and most diverse reaction from the class.
3. Explain to the students that over the past few days they have had an opportunity to express on the posters how they felt about several issues concerning food choices. In a minute they will be given a chance to say how they feel about (state the question from the poster selected).
4. Present the discussion rules outlined in the "Introduction to the Curriculum."
5. Restate the discussion question, "How do you feel about (question from the poster selected)?"
6. Conduct the discussion.

Materials needed

Poster board
Marking pens

"How Do You Feel About . . .?" questions

1. How do you feel about the cafeteria menu for this month?
2. How do you feel about foods that may taste great but have little or no nutritional value?
3. How do you feel about eating foods you have never tried before?
4. How do you feel about the snack foods served at school?
5. How do you feel about the elimination of nonnutritious foods being sold at school?
6. How do you feel about spending your lunch money for snack foods at the store on your way to school instead of saving it for lunch?

TOPIC: FOOD CHOICES

Lesson 10. Sharing Feelings About Food Choices

A values awareness lesson designed to help students explore their values about food choices

Activities

Procedures	Materials needed
1. Inform the students that the purpose of this lesson is to help them become aware of some of their values about foods they choose to eat.	
2. Distribute the work sheet "Exploring Values About Food Choices." Ask the students to think back over the last few days about food items they chose to eat. Have a few students share some of their choices. Then instruct the students to list foods they chose on their work sheet. Demonstrate these procedures, if necessary, on the chalkboard or a transparency of the work sheet. Emphasize that the students should list only those foods which they freely chose to eat while other selections were available to them. Explain that whenever we have the opportunity to choose food for ourselves, we usually have some reason or reasons for selecting those particular foods.	Work sheet: "Exploring Values About Food Choices," page K-63
3. Encourage the students to respond orally with the reasons they think that they, or people in general, choose certain food items to eat or to prepare for others to eat. When the students respond, write their reasons on the chalkboard under the heading "Reasons for Choosing Food." However, before placing the students' reasons on the chalkboard, you will probably need to rephrase their comments into shorter and more precise terms. (For example, you should change statements like "It's good for you" to "nutritional value"; or "I do not have to spend a lot of time fixing it" to "ease of preparation"; and so forth.) While you are writing these statements on the chalkboard, explain each one by paraphrasing or giving examples as appropriate for your students. If the students have difficulty, suggest some reasons you feel are significant, discuss them with the students, and add them to the list. Your completed list probably will include such reasons as the following: taste, smell, color, texture, nutritional value, ease of preparation, time of day, new food experience, size, temperature, ingredients, opinion of others, and so forth.	
4. Direct the students' attention to the section of their work sheet labeled "Reasons for Choosing Food." Instruct the students to transfer the reasons for choosing from the chalkboard to the diagonal spaces on the work sheet. (Demonstrate this procedure on the chalkboard or a transparency.) Inform the students that they will now be rating each reason in terms of its importance to the selection of each food item on their list. Explain that they are to take one food item at a time and move across their paper horizontally, rating the importance of each item under "Reasons for Choosing Food" in their food selection according to the following scale: 0 Not important 1 Somewhat important 2 Important 3 Very important	

Procedures	Materials needed

Write the rating scale on the chalkboard. Instruct the students to place the number of their rating (importance to their choice) in the appropriate square on the grid. Illustrate this procedure, noting that students may rate more than one reason with the same value. For example:

1. Apple	2	0	1	2	3	3

Direct the students to follow the same rating procedure for all of the food items they listed on their paper. Emphasize that they are to rate each reason according to the degree that it influenced their selection of a particular food item.

5. Ask the students to add the numbers in the vertical columns for each item under "Reasons for Choosing Food" and to place that number in the appropriate total box at the bottom of the grid.
6. Direct the students to cross out the words *reasons for* at the top of the grid and write the words *values about* in their place. Change the heading on the chalkboard in the same manner. Explain that the list of reasons for choosing food that they rated are really values that they have about making food choices. (You may also point out that they undoubtedly have other values about choosing foods that are not listed here.) Inform them that one way to look at the importance of these reasons or values about their food choices is to analyze the number of points totaled for each at the bottom of the grid. The higher the total, the greater the importance of that value on their food choices. Explain that these totals are probably fairly accurate indicators of some of the students' values about food.

   Point out that the students are to make a value statement about choosing foods. Write the following sentence on the chalkboard: One of my values about food is its______. Read the sentence to the students, filling in the blank with one of your values about choosing food as an illustration of what you want them to do.
7. Direct the students' attention to the "Identical Value Statement" at the bottom of their work sheets. Instruct the students to complete this statement by placing in the blank one of the values (reasons) listed on their work sheet. Ask the students to use a value other than taste in their statement. Explain that almost everyone considers taste an important value in selecting food and that you are interested in seeing a variety of value statements. Inform the students that the value used does not have to be the one with the highest total but would probably be one of the highest if it is truly one of their values about food.
8. Ask several students to volunteer to read aloud their sentences in which they have inserted in the blank one of their values about food. Ask the class to listen for similarities and differences in values and foods chosen. Ask the students what conclusions they can draw from the values that were shared.

   Conclude the activity by noting that some students have the same values and others have different values. Emphasize that people make food choices based on the values they hold about food. All other things being equal, two people may choose different food items, because they hold different values about food. Conversely,

Procedures	Materials needed
two people may choose the same food item because they have the same values about food. However, they may select the same item but for different reasons or values. (One person may choose an apple for its nutritional value, and someone else may select it for its ease of preparation.) Also, people may choose different foods, but for the same value. Regardless of the food choices we make, however, all of those decisions are usually based on the values we hold about food.	

TOPIC: FOOD CHOICES

Lesson 11. Identifying Influences of Emotional Feelings on Eating

An information acquisition lesson designed to help students identify how an emotional feeling influences a person's eating behavior

Objective

After completing this lesson, students should be able to identify three emotional feelings that influence a person's eating behavior.

Key Facts

Hunger is an inborn instinct that results from the deprivation of food. Appetite, to a degree a pleasant sensation, refers to the desire to eat and is a learned response.

An individual's appetite is affected by many factors relevant to his or her past and present, such as the use of food as a reward, the deprivation of food as punishment, and the availability of food in the home.

An emotional feeling is that human response to a situation or event in life which affects an individual. Emotions can be positive (e.g., happiness, joy, or pride) or negative (e.g., anger, fear, or sadness), depending on the individual and the situation.

One's appetite is affected by emotions that can override the body's physical signals for a need for food.

An eating behavior is a specific dietary action which can be voluntary or involuntary. Examples include dieting to lose or gain weight, fasting, or omitting specific foods, such as milk, from the diet.

Eating can provide an individual with positive feelings such as:

- Relief of an uneasy feeling that comes with beginning hunger
- Oral gratification
- A sense of security as when meals are eaten with family, friends, or other groups
- Expression of a social need
- Relief of feelings of anxiety
- Psychological sustenance by substitution for an unattainable need

Eating can have negative connotations for some people if the following occurs:

- They are denied food.
- Food is not available when they want to eat it. (They often show distress by becoming irritable.)
- The surroundings of the dining area do not meet personal standards.
- The desired quantity of food is not available.

Food may be used as a means of nonverbal communication (e.g., offering food as a reward or depriving food as a means of punishment).

Some people are overly concerned with the healthfulness of food, and their eating behaviors may reflect an obsession with vitamin pills, organic foods, and so forth.

A change in a diet to which an individual is accustomed may damage some aspect of his or her emotional health (e.g., an overweight person is placed on a strict diet, or a cardiac patient must limit the cholesterol in his or her diet, and so forth).

People may feel guilty about eating a desired food that is considered unhealthful (e.g., a hot dog at a baseball game or prime rib during a special occasion).

Activities

Procedures	*Materials needed*
1. Distinguish between *appetite* and *hunger*. Write the definitions of the words on the chalkboard. Discuss the difference between the two words, emphasizing that appetite is a learned response (that is, a predictable reaction) to food. Make analogies to situations concerning food which occur in the students' daily lives. Have the students distinguish whether the situation involves appetite or hunger. Examples are as follows:	

Procedures | *Materials needed*

a. Baked lasagna is Jim's favorite food. His mother has the dish in the oven when he comes home from school. Jim begins to salivate. (Appetite)
b. Three hours after Mary ate breakfast, her stomach begins to make rumbling noises. (Hunger)
c. Juan is not really eager for lunch because he drank a carton of orange juice for a midmorning snack. Entering the cafeteria, he sees that pizza, one of his favorite foods, is on the menu. He decides to eat lunch. (Appetite)
d. Jerome learns that he failed an English exam. He eats two chocolate bars after class. (Appetite)
e. Leticia must wait an hour after school for a bus to be repaired. Her friends managed to get other rides home. She eats an apple, a package of cookies, and some salted nuts while waiting. (Appetite)
f. Katie, who did not eat breakfast, feels light-headed during her first-period class. (Hunger)

Conclude this activity with a statement that hunger usually is a physical response to the lack of food and that one's appetite may be influenced by a situation or emotion.

2. Write the words *emotional feelings* on the chalkboard. List the examples students give under these words.

Write the words *eating behavior* on the chalkboard. Ask for examples of people's eating behaviors. List the students' examples under these words.

Tell the students that emotional feelings often influence an individual's eating behaviors. Read the following examples to the class:

a. Cathy gained seven pounds over the Christmas holidays and feels frustrated because none of her clothes fit well. She decides to go on a reducing diet to lose the extra weight.

   The following questions are to be asked orally:

   - What is the emotional feeling? (Frustration or guilt)
   - What is the eating behavior? (Dieting)
   - How are the two related? (Overeating produces frustration and guilt; dieting relieves these feelings. The diet may not be the best one to follow and may not change a person's eating habits, so this situation may happen again.)

b. John is a skilled carpenter. His mother had him repair a cabinet door in her garage. He was anxious to finish the job because his mother always thanked him by baking a lemon meringue pie. Homemade lemon meringue pie is his favorite food.

   The following questions are to be asked orally:

   - What is the emotional feeling? (Anticipation)
   - What is the eating behavior? (Food is used as a reward for good behavior, a job done well. John may eat more pie than he needs or wants.)
   - How are the two related? (John expects to be rewarded with food. He associates food with praise.)

Ask the students to think of other examples of how emotional feelings and eating behaviors are related (e.g., a person may feel

Procedures	Materials needed
happy sharing a holiday meal with family; people may feel guilty when they snack on extra cookies when they know they have already eaten enough food that day, and so forth).	
3. Display "Transparency Master One" on the screen. Discuss the emotions of the person shown. Identify the eating behaviors. Discuss why emotions and eating behaviors are related. Repeat this procedure for transparency masters two, three, and four. Ask for questions from the students at this time.	Transparency masters one, two, three, and four, pages K-64 through K-67
4. Distribute the "Eating Behavior" work sheet. Instruct the students to complete it. When everyone is finished, divide the class into groups of three or four. Instruct the groups to select a member of the group to serve as a recorder. Assign a number to each group. Tell the groups to review each situation and compare the answers that each group member wrote. The recorder will add to his or her work sheet any emotions or eating behaviors identified by a member of the group which do not agree with other group members' answers. Instruct the groups to discuss the relationship of the two factors. Tell the recorders to write a consensus statement of the relationship in one or two concise sentences. While the groups are working, draw a chart on the chalkboard to display the information from the groups.	Work sheet: "Eating Behavior," pages K-68 and K-69

	Group One	Group Two	Group Three	Group Four
Situation A				
Emotion	Frustration			
Behavior	Dieting			
Relationship	Inability to wear a certain size motivates dieting.			

Procedures	Materials needed
Ask the recorders from each group to write their information on the chalkboard as soon as the group members have finished the task. While the recorders are writing responses on the chalkboard, the other students can return to their seats. Compare the answers given by each group. Use the differences on the chart as a basis for discussion. Ask the class whether eating behaviors are always related to the same emotions. (No) Ask whether eating behaviors can be controlled or predicted. (Sometimes)	
5. Inform the students that they will now be writing word cinquains (pronounced 'sing ,kānz) about how emotional feelings influence eating behaviors.	
Tell the students that a word cinquain is a five-line poem. Write *cinquain* on the chalkboard. Tell the students that emotional feelings and eating behaviors are unique and personal for each individual. Explain that through a word poem called a cinquain, each student will have an opportunity to express the relationship between emotional feelings and eating behaviors. Distribute the	Handout: "Word Cinquains," page K-70

Procedures	Materials needed
"Word Cinquains" handout to the students. Explain the directions. Place the transparency master on the overhead projector. Cover up all of the information except for the description on the first line. Tell the students to refer to the list of emotional feelings given on the chalkboard. Uncover the directions for the second line. Explain that this line is a description or further explanation of the emotional feeling. Uncover the directions for the third line. Explain that this line is a description or an expression of an eating behavior related to or influenced by the emotional feeling. Uncover the directions for the fourth line. Explain that this line is an expression of a personal attitude toward the eating behavior. Uncover the directions for the fifth line. Explain that this line is one word which sums up, restates, or supplies a synonym for the emotional feeling expressed in line one.	Transparency master: "Word Cinquains," page K-70 (The handout and the transparency master are the same.)
Explain that by following the pattern, one can write a poem about emotional feelings and eating behaviors. Stress that articles such as *a, an, the,* and so forth count as a word.	
Display and discuss the cinquain examples shown on the transparency.	Transparency master: "Cinquain Examples," page K-71
Instruct the students to write their own word cinquain about emotional feelings and eating patterns.	
When the students have completed their word cinquains, divide the class into groups of three. Instruct the students to exchange word cinquains within the group. Tell the group members that they are to edit and make suggestions about each other's word cinquains and that they are looking for errors in spelling, grammar, or punctuation. Suggest that any criticisms be positive. Tell the students that the word cinquain must match the pattern given on the handout.	
Keep the class in groups of three. Tell the students to rewrite the word cinquains, correcting or revising them as needed.	
Tell the class that the next part of the activity will be to use construction paper, scissors, glue, markers, and so forth to create a backing on which to copy the cinquain.	Construction paper Scissors Glue Markers
Tell the class that you would like them to develop a cinquain backing depicting a food or food-related object.	
Say to the students, "If your word cinquain deals with a positive emotional feeling like joy, use a food or food-related backing that has a positive connotation. If your word cinquain deals with an emotional feeling related to or influenced by overeating, select a food or food-related backing associated with the relationship between emotions and eating behavior. If your word cinquain deals with an emotional feeling related to an eating behavior associated with holidays or a celebration, select a food or food-related backing associated with these events."	
Tell the students to use their imaginations and to be as creative as possible.	
Inform the students that the finished project will be evaluated according to the following criteria:	
a. Accuracy of the pattern for a word cinquain b. Use of appropriate examples of emotional feelings and eating behaviors in the word cinquain	

Procedures | Materials needed

c. Identification of how a specific emotional feeling can influence an eating behavior
d. Use of a backing shape appropriate for the word cinquain

Display the completed projects on the bulletin board or hang them from the ceiling as a mobile. To prepare a mobile, punch small holes near the top edge of the backing; string the word cinquains with fishing line or strong thread which is to be attached to the ceiling with pins or tacks.

6. When you are planning a lesson on the *use of dialogue to show character development and the correct paragraphing and punctuation to use for this form of writing,* you may wish to use the following activity in helping the students to achieve the subject-matter objective:
   a. Have the students write a dialogue which, through character development, reveals how emotions may influence a person's eating behavior. Inform the students that emotions may affect one's eating behavior. A nervous person may experience indigestion while eating. Tension may cause a person to nibble constantly. Depression may cause some people to limit their food intake or to stop eating, or it may lead others to overeat.
   b. Hand out "Mary's Problem" and direct the students to read it. Ask two students to role play the conversation between Mary and Mrs. Moore and between Mary and her doctor.

Handout: "Mary's Problem," page K-72

   c. Lead a class discussion of the role playing to discover whether the students comprehend that emotions may influence eating behavior. Ask the students, "Would any of you like to share how or in what ways you believe that a person's emotions may affect his or her eating habits?"
   d. Assign the students to write a dialogue between Mary and Mrs. Moore or between Mary and her doctor. Review the correct punctuation for dialogue.

7. When you are planning a lesson on *survey techniques, reporting skills,* and *listening and writing skills,* you may wish to use the following nutrition activity to help the students achieve the subject matter objective:
   a. Have the students take an open-ended survey, using the question, "When I experience stress, I eat______ because______." Have the students survey a specific number of people in the following age groups:

Early teens	Twelve through fourteen
Late teens	Fifteen through nineteen
Young adults	Twenty through twenty-five
Adults	Twenty-six and over

   b. Have the students write a report on the results of this survey. Emphasize that they should try to establish a specific correlation among stress, age group, and food choice.

8. Invite food service personnel to provide information about alternative nutritional food choices in times of stress (e.g., food choices at school during an examination period, before football games, and so forth).

Procedures	Materials needed
9. Invite a behavior modification specialist to class to present methods of modifying behavior during stressful times.	
10. Have the students keep a record of all food they consume for one week. Have the students describe, in writing, their feelings each time they ate. Discuss how these feelings influenced their selection of foods. The following are questions they might consider: a. What was the emotion that led you to eat the food? b. What could have been a positive alternative food choice? c. Was eating a necessary alternative? d. Would it be possible to modify your behavior to exclude eating when you feel this way?	
11. Ask the students the following questions to show them the *effects of competition or performance on their eating habits:* a. How do you feel just before playing a big game? b. How do you feel after losing a game? c. How do you feel after winning a game? d. How do your feelings affect your eating habits after you win a game? e. How do your feelings affect your eating habits after you lose a game? Inform the students that their eating behavior can change because of emotions (e.g., celebrating by having lots of food and beverages after a win, or feeling so down after a loss that nothing sounds good to eat—or else eating too much as a means of consolation). It is important to remember that if habits such as these continue over a long period of time, a person's health can be affected.	
12. Arrange a panel discussion for a classroom activity. Invite a psychologist to discuss stress and how it may affect a person's food choices. Invite a nutritionist to participate, to point out, or to discuss people's nutritional needs in times of stress. Have the students write a composition or paragraph presenting what they have learned from the panel discussion.	
13. When you are planning a lesson on *visual, tactile, and sensory feelings,* you may wish to use the following activities in helping the students to achieve the subject matter objective: a. Have the students make a display of raw and prepared foods with the use of pottery or papier maché. b. Place special emphasis on having the students construct foods that represent colors, shapes, and textures that may not be characteristic or common to those foods, such as a purple banana, a rough-surfaced eggplant, a square apple, or spaghetti made from copper wire. c. Discuss why some of the foods that have been sculptured are more appealing than others. Use the students' comments as a point of departure in a discussion of how feelings can affect what we eat. d. Display the prepared foods so that other students in the school may see them (e.g., gallery display, display case, a lunch table in the cafeteria).	

Evaluation

Have the students complete the work sheet "Influences on Eating Behavior," pages K-73 and K-74, and discuss their answers.

Food Service Involvement

Ask the food service manager to discuss with the students ways the school eating environment affects the emotions of the students and the staff and ways the environment might be improved.

Notes

Answer Key:

"Influences on Eating Behavior," pages K-73 and K-74

Part I

(1) Hunger
(2) Appetite
(3) Appetite
(4) Hunger
(5) Appetite
(6) Appetite
(7) Appetite
(8) Hunger

Part II

(1) EB
(2) EF
(3) EB
(4) EB
(5) EF
(6) EF
(7) EF
(8) EF
(9) EB
(10) EF

Part III

The answers will vary. Examples are as follows:

Emotions: angry, sad, depressed
Eating behavior: overeats, eats a lot of candy, eats a quart of ice cream or refuses to eat
Relationship: John feels angry and upset and loses any appetite for food.
John feels sad and eats a quart of ice cream, hoping that it will help him to feel better.

Part IV

The answers will vary. Examples are as follows:

Emotions: tension, frustration, anxiety, depression
Eating behavior: skipping meals, snacking, eating compulsively
Relationship: Mary is busy and tense; so she skips meals and eats snacks. Mary feels depressed and eats compulsively, hoping to feel better.

Lesson 12. Identifying Nutritionally Adequate Cultural Food Patterns

An information acquisition lesson designed to help students identify how different cultural food patterns supply nutritionally adequate diets

Objective

After completing this lesson, students should be able to identify different cultural food patterns that supply nutritionally adequate diets.

Key Facts

All people need food for the same reasons: energy, growth, health, and well-being. Many different cultural food patterns supply the same essential nutrients.

Foods high in iron, vitamin C, and vitamin A are listed on the chart at the top of page 17 in Lesson 3. Foods high in calcium include milk and milk products, such as cheese; sardines and shellfish; and dark green leafy vegetables, such as spinach, mustard greens, and broccoli.

Activities

Procedures	*Materials needed*
1. Inform the students that this lesson will enable them to explore ways in which different cultural food patterns yield nutritionally adequate diets.	
2. Distribute a large sheet of construction paper to each student. Tell the students to draw an outline of their favorite food on the construction paper. Be sure the outline fills the paper. Direct the students to divide the food outline into six sections and label each one *a* through *f*. This will become their personal food shield.	Large construction paper
Have the class draw or find magazine pictures to represent each of the following: a. Favorite food as a child, prepared at home b. Favorite food now c. Favorite cultural food (from your own cultural background) d. Foods you have for celebrations e. Foods you eat when you are sick f. Favorite cultural food you order if you eat at a restaurant (not necessarily from your own background)	Magazines
Direct the class to draw or glue the pictures in the appropriate section of the food outline.	Glue
Tell the students to select a study partner. Distribute a "Food Shield Comparison" work sheet to each student. Direct the students to discuss the questions with their study partner and to write the answers on the work sheet.	Work sheet: "Food Shield Comparison," page K-75
Explain to the students that what they have just done is to get better acquainted with another person and learn that not all people or groups have the same food likes and dislikes. Tell the class that, regardless of an individual's country of origin or the amount of money available to spend for food, all people have the same need for nutritious foods.	
Collect the personal food shields to display in the classroom on the bulletin board, to hang from the ceiling, or to show in whatever manner is appropriate.	

Procedures	*Materials needed*
3. Divide the class into four or five groups. Distribute one telephone book to each group. Tell the students to turn to the restaurant listings in the yellow pages. Ask, "What cultural groups are represented?" List the students' responses on the chalkboard. Ask the students to name other cultural groups they are aware of and to volunteer to describe foods from their own cultural heritage. Discuss this topic. Ask the class to name some foods which are characteristic of the cultural groups listed on the chalkboard. Write the names of the foods next to the appropriate cultural group.	Local telephone books
Optional homework assignment: Have the class find out which cultural groups are represented in the local communtiy. Check the following: census reports, local speciality food markets, telephone listings of cultural derivations of names, local churches (e.g., Greek Orthodox, Buddist Temple, and so forth), cultural distribution report from the local school district, and so forth. Have the students report their findings, or have them complete "My Culinary Roots" work sheet. Have the students report their findings.	Work sheet: "My Culinary Roots," page K-76
4. Distribute the "Cultural Food Choices" chart. Ask the class, "What nutrients are found in one of the foods listed on the chalkboard?" (An example is Tacos contain cheese, a source of calcium; corn tortilla is a source of carbohydrate; and meat, a source of protein.) Continue asking the students to analyze five or six other cultural foods listed on the chalkboard so that you are sure that everyone understands how to use the chart. Point out that in one culture the calcium is provided by the milk, in another by tofu, and in yet another by dark green leafy vegetables such as spinach or collard greens. Also point out that eating habits will vary within cultural groups, depending on many different factors such as food availability, religious taboos, and customs. Explain that the "Cultural Food Choices" chart is only a general guide to foods that may be characteristic of the four selected cultural groups. For example, methods of cooking in China come from four different geographical regions: • Southern—Canton • Northern—Peking, Shantung, and Honan • East coastal—Shanghai and Fukien • Western or inland—Szechwan, Hunan, and Yunnan Review with the class other influences on food choices in addition to geographical regions (examples are religion, economic influences, family customs or traditions, or food availability).	Chart: "Cultural Food Choices," page K-77
Distribute the "Menu Evaluation" work sheet. Ask the students to plan a meal characteristic of a cultural group of their choice as a homework assignment. Resources such as cookbooks, restaurant menus, interviews, or library references can be used. As the meal is planned, ask the students to check in the appropriate squares the nutrients supplied by each food selected. The handout "Food Sources of Vitamin A, Vitamin C, and Iron" may be used as a resource. Foods high in calcium (refer to "Key Facts," page 45) may be listed on the board as a resource for students if desired.	Work sheet: "Menu Evaluation," page K-78 Handout: "Food Sources of Vitamin A, Vitamin C, and Iron," pages K-22 and K-23
Discuss and evaluate the students' menus.	
5. Inform the class that during the holidays traditional foods are often served. Sometimes traditional holiday foods from several different	

Procedures	*Materials needed*
cultural groups are combined, and a family's own special meals or customs for holidays are established. Discuss examples of menus served for different holiday occasions with the students. Mention the cultural group that follows the tradition, if known. For example, saffron cake (a yeast bread with saffron powder and raisins) is a traditional food in Cornwall, given as a gift at Christmas. If a person receives 12 saffron cakes, it is said that he or she will enjoy 12 months of good luck.	
Distribute "Foods for Holiday Celebrations." Review the work sheet with the class. As a homework assignment, ask the students to select a person to interview (family, friend, neighbor) and to find out about foods he or she uses for holiday celebrations, using the work sheet as a guide. When the work sheets are completed, conduct a class discussion comparing the results of the students' interviews.	Work sheet: "Foods for Holiday Celebrations," page K-79
Optional activities: • Guest speakers. Parents, food service staff, other school staff, community members, or students may have more information to share about a culture that is of interest to the class. Invite these resource people to speak to the class and/or give a demonstration about the food habits of the culture. • Menus. Ask the students to bring in menus from various restaurants, specializing in different kinds of cultural foods. Analyze the menus to determine the nutrients these foods contain or to determine which food groups these foods belong to. Discuss and compare the different menus. • Field trip. Arrange a field trip to a market to explore the variety of cultural foods available. Ask the students to make a list of the items they find and to identify the country or culture associated with the food. • Potluck. Ask the students to prepare food items representing different cultures. When the food item is served, ask the students to label it with the following information: name of dish prepared, country of origin, ingredients, food groups represented, and nutrient contribution.	
• Films. View films about the eating habits of people from various cultures. • Recipes. Collect recipes from different cultures and prepare a recipe collection. (This activity can be used as a fund-raising project for the school if recipes are published and sold.)	For a list of free-loan films, contact: The Nutrition and Food Service Education Resource Center 321 Wallace Avenue Vallejo, CA 94590, 707-557-1592

Evaluation

1. Direct the students to write a paragraph based on the following topic sentence:

   "I can/cannot eat foods from different cultures and still satisfy my nutrient needs."

2. Ask the students to include at least two specific examples of how these needs can or cannot be met.

   Evaluate the paragraph based on how well it demonstrates the following:

   a. A student's understanding of the concept that many different cultural food patterns supply the same nutrient needs
   b. The accuracy of the examples used (Examples from or similar to the "Cultural Food Choices" handout may be given.)

Food Service Involvement

1. Take an existing menu from the cafeteria and identify cultural foods and their nutrient contribution. Display this menu in the cafeteria serving area.
2. Discuss cultural recipes with the food service staff for possible inclusion in the school lunch program. On the serving day, involve the entire school with posters, bulletin notices, music, costumes, dance demonstrations, assemblies, and so forth. Students might be asked to assist with preparation and serving.
3. Ask the food service manager to assist in a student survey to determine cultural foods that students would like or not like on the school lunch menu.

Lesson 13. Sharing Feelings About Cultural Food Habits

An open-ended discussion lesson through which students have an opportunity to explore their feelings about trying foods from other cultures

Procedures	*Materials needed*
Discussion Sequence	
1. Inform the students that the purpose of this lesson is to explore their feelings about trying foods from other cultures.	
2. Distribute copies of "Eating Other Foods" and ask the class to read this handout.	Handout: "Eating Other Foods," page K-80
3. Invite the students to share other kinds of food which may seem unappetizing or unusual to them.	
4. Inform the students that they are now going to have an opportunity to share their feelings about eating unusual kinds of food.	
5. Present the discussion rules outlined in the "Introduction to the Curriculum."	
6. Present the discussion question: How do you feel about trying foods from other cultures usually not included in your diet?	
7. Conduct the discussion.	

Lesson 14. Identifying Careers in Food-Related Fields

An information acquisition lesson designed to help students identify the career possibilities in the following food-related fields: consumer food advocacy, agriculture, and food services

Objective

After completing this lesson, students should be able to identify career possibilities in consumer food advocacy, agriculture, and food services.

Key Facts

Refer to *Nutrition Education—Choose Well, Be Well: A Resource Manual for Secondary Teachers,* pages 31 through 33, and the pamphlet "Food-Related Career Opportunities," Appendix I.

Activities

Procedures	Materials needed
1. Inform the students that the purpose of this lesson is to investigate some of the careers available in food-related fields. Write the following three terms on the chalkboard: *Agriculture, Consumer Food Advocacy,* and *Food Services.* Ask the students to give examples of food-related careers. Discuss in which category they would belong, and list the career in the appropriate category. Some food-related careers may not fit into any of these three categories and can be included under a fourth "other" category.	
2. Distribute Appendix I, "Food-Related Career Opportunities." Ask the students to read the pamphlet and to answer the questions on the last page. Discuss the content of the pamphlet and answer any student questions. Ask the students to add the names of any additional careers that they learned about in the pamphlet to the list on the chalkboard.	"Food-Related Career Opportunities," Appendix I
3. Distribute the work sheet "Food-Related Careers Investigation." Ask the students to investigate a food-related career, using resources at the library, career center, or other source. The assignment should include at least one interview with a person knowledgeable in the career selected for the investigation.	Work sheet: "Food-Related Careers Investigation," pages K-81 and K-82
4. If possible, invite guest speakers from various food-related occupations to speak to the class about their job. The information listed on the "Food-Related Careers Investigation" handout could serve as an outline of material to be covered by the guest speakers. Possible sources of speakers are local consumer groups, vocational training schools, colleges or universities, cooperative extension offices, 4-H club programs, school food service programs, hospitals, or restaurants (including fast-food restaurants).	
5. When you are planning a lesson on *newspaper reading skills,* you may wish to use the following activity to achieve the subject matter objective:	
a. Get copies of classified advertisements from the local newspaper. Break the class into groups of four. Ask each group to locate advertisements for food-related careers. Compare and discuss each group's results.	Classified advertisement section of a newspaper
b. Ask the students to watch for newspaper articles concerning the work of people in food-related careers. Discuss and display examples of these articles.	Newspapers

Procedures	*Materials needed*
6. When you are planning a lesson on *calculating income by the week, month, or year,* you may wish to use the "How Much Do They Earn?" work sheet. (Figures and amounts can be adjusted to suit local wage scales.)	Work sheet: "How Much Do They Earn?" pages K-83 and K-84

Evaluation

1. Have the students complete the work sheet "Food Career Riddles," page K-85, and discuss their answers.
2. Ask the students what they have learned about food-related careers. Also have the class members discuss the results of their interviews and what they learned as a result of this activity.

Food Service Involvement

1. Invite the food service staff members to discuss their careers, covering the information on the "Food-Related Careers Investigation" work sheet.
2. Ask food service personnel for assistance in locating persons in food-related careers for student interviews and to use as guest speakers when implementing the lesson.
3. Ask students who have worked in the school cafeteria to share their experiences and feelings about the job.

Notes

Answer Key:

"How Much Do They Earn?" pages K-83 and K-84

I. 1. $398
2. $20,696
3. $5.97
4. $238.80

II. 1. 18 hours
2. $60.30
3. $361.80
4. $10.85
5. $11.50

III. 1. 1,162.5 hours
2. $6,852
3. $5.89
4. $571
5. $1,150
6. $8,002

"Food Career Riddles," page K-85

1. C
2. A
3. F
4. D
5. E
6. B

Lesson 15. Sharing Feelings About Job Choices

An open-ended discussion lesson through which students have an opportunity to share ideas, opinions, and feelings about job choices

Procedures	Materials needed
Discussion Sequence	
1. Inform the students that the purpose of this lesson is to exchange ideas, opinions, and feelings about job choices.	
2. Explain that most people will work at some kind of job at one time or another in their lives. In real life it is not always possible to choose that job which you would most prefer. But suppose that you do have a choice. Job choices depend on your own personal likes and dislikes, on your abilities and training, and on the jobs available. You may find that many different kinds of jobs in food-related occupations are available to young people.	
3. Distribute copies of the "Dear Annie Letter" and ask the class to read it.	Handout: "Dear Annie Letter," page K-86
4. Inform the students that they are now going to have an opportunity to share their ideas about job choices and give advice to "Undecided."	
5. Present the discussion rules outlined in the "Introduction to the Curriculum."	
6. Restate the discussion question: What should "Undecided" do?	

Lesson 16. Exploring Values About Jobs in Food-Related Fields

A values awareness lesson designed to help students explore their values about jobs in food-related fields

Activities

Procedures	*Materials needed*
1. Inform the students that the purpose of this lesson is to help them to become aware of some of their values about jobs and how their values affect their decisions about where they might choose to work.	
2. Tell the students about the following hypothetical situation: You are sixteen and you have a work permit. You want to work during the summer. You find out from friends and neighbors about jobs in the following places: Hamburger Heaven, Posh Restaurant, and Happy Hotel. A detailed description of each job appears in the work sheet, "Which Job Would You Choose?"	
Distribute "Which Job Would You Choose?" Explain to the students that they will have about ten minutes to read the information about the jobs.	Work sheet: "Which Job Would You Choose?" pages K-87 and K-88
3. Tell the students that, based on this information, they must decide which job they would choose. Give them time to work.	
4. After the students have made their selections, poll the class to find out who has chosen jobs A, B, and C. Do not make any direct or indirect judgments about their selections. Allow them to make statements about their choices if they wish to do so.	
5. Ask the students to look at the possible values for the job which they have chosen and to star the value or values which made them decide to apply for that particular job.	
6. Inform the students that those things which they have starred are clues to their values about jobs.	
7. Invite some of the students who wish to do so to identify the jobs which they chose and their main reasons for selecting those particular jobs.	
8. When the students finish reporting, ask them to state the value or values that influenced their selection of a given job. (They may add additional values of their own.)	
9. Conclude the activity by directing the students' attention to the value statement about jobs on the bottom of their work sheets. Ask them to complete their value statements, referring to the work sheet and writing in the values they selected. Demonstrate this procedure by completing a value statement for one of the jobs: "Some of my values about a job are that it ____________________ ________________________________ ________________________________."	
10. Invite a few students who are willing to do so to share their value statements.	
11. Point out that people's values about jobs affect their decisions about which jobs they choose. Because different people have different values about jobs, their choices of jobs differ.	

Lesson 17. Influencing Decisions Made in the Food Industry

An information acquisition lesson designed to help students specify ways in which consumers can influence decisions made in the food industry

Objective

After completing this lesson, students should be able to identify three ways in which a consumer can influence decisions made in the food industry.

Key Facts

Those who buy food have certain rights and responsibilities as consumers, and as such, they may influence decisions made in the grocery industry. They have the responsibility of understanding that they should be (1) practicing good buying habits; (2) protesting the injustices of inferior food products, false advertising, and unfair prices; (3) supporting consumer groups and consumer education; and (4) communicating with manufacturers and retailers to inform them which products are acceptable and meet the needs of the consumer.

Examples of unfair advertising practices are as follows:

Violation of literal truth advertising. Literal truth advertising means that every statement in an advertisement must be literally true. An advertisement in which all the statements are not literally true violates this policy.

Example: Eggs advertised as jumbo eggs are smaller.

Loss leaders that limit one item to a customer. A low-priced item is advertised to lure customers into the store (loss leader). No limit is stated in the advertisement, but customers who make a purchase are limited to one item.

Example: Canned tomato sauce selling for 29 cents a can is advertised. When customers get to the store, they are limited to one can of sauce per person.

Bait and switch advertising. A low-priced sale item is advertised; however, in the store a salesperson unfavorably presents the sale item in an attempt to switch the customer to a higher-priced item.

Example: Beef is advertised for $1.89 per pound at Harry's Meat Locker. Harry shows a customer inferior quality beef, downgrades the product, and promotes the $2.50 per pound beef in an attempt to get the customer to switch to it.

Raincheck advertising. A store advertises an item at a low price but is sold out when the customers arrive. The store gives them coupons to redeem at a later date.

Example: Canned olives are on sale for 39 cents a can, but the store has only two cases and runs out.

Consumers have the responsibility to protect themselves against unfair advertising practices. The following are ways to prevent becoming a victim of this kind of advertising:

- Be informed.
- Use common sense.
- Be suspicious (if you seem to be getting something for nothing).
- Deal with reputable firms.
- Resist being pressured into making a quick decision.
- Do not sign your name on anything until you know what you are signing.
- Never be afraid to say no.

The consumer may do the following in case he or she receives unsatisfactory service or poor quality goods:

1. Contact the manager of the store.
2. Discontinue using the product and shopping at the store until your complaint has been settled.
3. Ask your friends to do the same.
4. Write a complaint letter to the president of the company.
5. Contact a consumer protection agency, such as one of the following:
    - Local newspaper, radio, or television station
    - Local consumer affairs office or the California Department of Consumer Affairs
    - District attorney's office
    - Attorney general's office
    - Better Business Bureau
    - Federal Trade Commission

- Small claims court
- A private attorney who can handle a complaint outside of a small claims court

Explain to the class that these steps can be used to present a complaint or to express satisfaction about a product.

Activities

<table>
<tr><th>Procedures</th><th>Materials needed</th></tr>
<tr><td>1. Distribute the coupons and inform the students that they may redeem them tomorrow in class. (Coupons should be redeemable for a food product that is desirable to this age group. Suggestions include ice cream sandwiches, pizza, juice bars, and so forth.)</td><td>"Coupons," page K-89 (Provide enough for each student in the class.)</td></tr>
<tr><td>On the day of the lesson, put up a sign on the classroom door that the students will see when they enter the class. The sign is to state that coupons are redeemable for (whatever food product the teacher chooses) at checkstand number one.</td><td></td></tr>
<tr><td>Set up a table to be used as a mock checkstand with a sign stating: "Checkstand number one, please form a line."</td><td></td></tr>
<tr><td>Inform the students that there will be a short delay and that they are to wait in line. (The reason for this delay is to postpone the start of the activity until all the students arrive.)</td><td></td></tr>
<tr><td>Redeem the students' coupons but have only enough of the food product to give to four or five students. Inform the students that the product they have come to redeem their coupon for is all sold out and that you are sorry, but there is no more and they are to return to their seats. Ask the students what feelings they have right now (possible feelings: cheated, mad, angry, used, gypped, and so forth).</td><td>Four or five samples of food products</td></tr>
<tr><td>Ask the students what they would do if this shortage of goods happened in a real store (possible answers: ask for a rain check, become angry and insist on being given the product, substitute other goods for the product, ask for a refund, and so forth).</td><td></td></tr>
<tr><td>Inform the students that for them to become more aware and informed consumers they need to know what to do if they feel that unfair advertising is being used. Tell the class that to prevent further unfair advertising practices, consumers have the right and responsibility to fight back.</td><td></td></tr>
<tr><td>2. Set out several examples of food products on a table in front of the classroom. In front of each item, place an index card, listing the reason why people may be dissatisfied with the product identified on the card. Fold the card in half so that it will stand up. Examples:
<table>
<tr><th>Reasons Why Dissatisfied</th><th>Food Examples</th></tr>
<tr><td>Box designed to appeal to young children by using cartoon characters</td><td>Presweetened cereal</td></tr>
<tr><td>Misleading, fancy packages</td><td>Holiday gift ideas—large heart-shaped candy box with a small amount inside</td></tr>
<tr><td>Empty bottom package</td><td>Specialty ice creams with empty bottoms</td></tr>
<tr><td>Foreign object in food</td><td>Bugs in flour</td></tr>
<tr><td>Stale product</td><td>Cereal</td></tr>
<tr><td>Expired pull date</td><td>Milk, or sour cream sold after pull date</td></tr>
</table>
</td><td>Food products
Index cards</td></tr>
</table>

Procedures	Materials needed
Describe each product and the reason why people could be dissatisfied with it. Ask the students whether they have ever bought a food product that turned out to be unsatisfactory. Ask the students to describe the product and explain what they did about the problem (possible answers: did nothing; threw it away; ate it anyway; returned it and got a refund; received a new product, and so forth). On the chalkboard list the answers that students give.	
3. Use the "Unfair Advertising Practices Puzzles" patterns to make six copies of each puzzle from one color of construction paper. There should be enough puzzles for six groups of four to five students each.	Patterns: "Unfair Advertising Practices Puzzles," pages K-90 through K-93 Construction paper
Divide the class into groups of four to five students each and distribute the jigsaw puzzles to each group, placing four complete puzzles that are mixed up, numbered side up on each table. Give the students time to put the puzzle pieces together on their tables. They should have four correctly completed puzzles. Referring to the "Unfair Advertising Practices" handout, list and discuss the answers.	Handout: "Unfair Advertising Practices," page K-94
Explain to the students that the best protection they have against these unfair practices is themselves. Using the overhead projector and the transparency "Ways to Prevent Becoming a Victim of Unfair Advertising Practices," show the students methods they can use to combat unfair advertising. If desired, distribute copies of "Ways to Prevent Becoming a Victim of Unfair Advertising Practices."	Transparency master: "Ways to Prevent Becoming a Victim of Unfair Advertising Practices," page K-95
4. Divide the students into groups and ask them: "What do you feel could be done if you were a victim of, or aware of, an unfair advertising practice?" Give each group a felt pen and a large piece of paper and have the members list what resources a consumer has. Discuss this topic using the "Recourses Available to the Consumer" handout as a reference.	
5. Divide students into groups and ask them: "What do you feel could be done if you were a victim of, or aware of, an unfair advertising practice?" Give each group a felt pen and a large piece of paper and have the members list what recourses a consumer has. Discuss the topic using the "Recourses Available to the Consumer" handout as a reference.	Felt pens Large pieces of paper Handout: "Recourses Available to the Consumer," page K-96
Tell the students that a businesslike approach is important when they follow through on a recourse. Ask the students how they should act when stating a complaint to a manager of a store (possible answers: talk seriously, be polite, be prepared, and so forth).	
Inform the students that if they want results, the best approach is to follow some guidelines. List the following guidelines on a large piece of colored construction paper: a. Be polite. b. Look at the manager's face. c. Plan what you are going to say in advance. d. Be businesslike. e. State your points concisely.	
Display the list on the bulletin board, as shown on "Bulletin Board Idea," page 58.	Directions: "Bulletin Board Idea," page 58
5. Ask for four volunteers; then hand each student one role-playing card that depicts a certain type of character. Explain to the students	"Role-Playing Cards," page K-97

Procedures	*Materials needed*
that they are to act out the character described on their card and read the dialogue in front of the class. Give them five to ten minutes to practice the role outside the classroom.	
Inform the rest of the class that these students will be portraying various consumers who are stating a complaint to a store manager. Have the volunteers quickly act out their roles, one right after the other. When everyone has finished, have each volunteer state the character's name, which depicts the type of person played.	
Discuss each character, asking the class why or why not the approach used would be a good way to state a complaint to a store manager. If necessary, inform the class of the following possible answers:	
Hot-Headed Harold: If people act this way, the manager may not take them seriously. The manager may feel that this kind of customer complains about anything. The manager, therefore, would not try to remedy the actual problem. Instead, he or she might try to satisfy the customer by giving a refund.	
Meek, Shy, Apologizing Andy: A manager could sense the shyness of a person like this and simply give excuses for what happened, thus not remedying the situation. The manager is certain about having the upper hand.	
Too-Busy-to-Care Karen: The manager would probably not take her seriously, because if the matter were important enough to her, she would have taken the time to make a legitimate complaint about the misleading advertisement in the newspaper.	
Businesslike Becky: Her approach is the correct way to state a complaint. A manager may find it hard to say no to someone who is not only polite, but informed. This customer would probably get her rain check because most businesses are not trying to be deceptive. The problem is that most consumers do not ask for a rain check.	
6. Inform the class that a complaint letter can also be an effective consumer recourse. Referring to the "Rules for Writing Consumer Complaint Letters" transparency, discuss how to write a complaint letter. Ask the students to suggest a complaint for a class letter-writing lesson. Have them write a complaint letter as a group. Use an overhead projector and a transparency on which to copy the students' suggestions. Continue working until the class agrees that the letter is in finished form.	Transparency master: "Rules for Writing Consumer Complaint Letters," page K-98
Distribute the "Complaint Letter" work sheet and the handout "Rules for Writing Consumer Complaint Letters." Tell the students to write their own individual complaint letters on the work sheet as a homework assignment.	Work sheet: "Complaint Letter," page K-99 Handout: "Rules for Writing Consumer Complaint Letters," page K-98 (The transparency master and the handout are the same.)
Ask for four or five student volunteers to form a panel consisting of managers, presidents of companies, and various business people. Have these volunteers sit at a long table that is arranged at the front of the class. Tell the rest of the class members that they are to read their complaint letters to the panel of business people. Have the students raise their hands so that the panel will call on them. The students will then read their letters to the panel. They may direct the letters to one panel member in particular—or to the entire panel. Inform the students on the panel that they are to answer the letter	

Procedures	Materials needed
orally. Ask the panel members to respond to as many letters as time allows.	
7. When you are planning a lesson on *business letter writing,* you may wish to use the following activity in helping students to achieve the subject matter objective:	
a. Introduce the correct format for a business letter, and ask the class to write a business letter on one of the following topics:	
• You have purchased a product which you feel is unsafe. Write a letter of complaint to the company.	
• You have read an advertisement which leads you to purchase the particular product. The advertisement's claims were clearly false; the product is inferior. Write a letter of concern to an attorney or to your nearest consumer agency.	
• You have purchased a product which you believe is superior. Write a letter to the manufacturer, saying that this product is superior. Explain your reasons.	
b. If possible, provide the class with the names and addresses of local, state, and federal consumer agencies. In addition, invite guest speakers from these agencies. Help the students find the names and addresses of the manufacturers.	

Evaluation

Have the students complete the work sheet "Advertising Techniques," page K-100, and discuss their answers.

Food Service Involvement

Invite the cafeteria manager to speak about experiences she or he has had when receiving inferior food products from vendors.

Notes

Answer Key:

"Advertising Techniques," page K-100

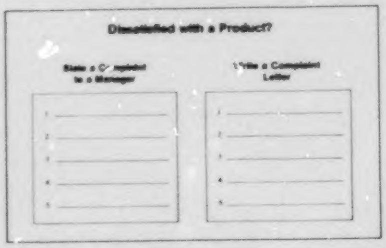
Answers: 1. d; 2. a; 3. c; 4. b

The five basic recourses available to the consumer are as follows:

5. Contact the manager of the store.
6. Discontinue using the product and the store until your complaint has been settled.
7. Tell your friends to do the same.
8. Write a complaint letter to the president of the company.
9. Contact a consumer protection agency.

Bulletin Board Idea

Directions: Using the following example, place the two lists that you make out of construction paper during the class lesson in the corresponding squares on the bulletin board.



Lesson 18. Influencing the School Food Service Program

An information acquisition lesson designed to help students specify one way in which they can influence the school food service program

Objective

After completing this lesson, students should be able to name one way in which they can influence the school food service program.

Key Facts

The food service program in each local school district operates under federal and state regulations. These regulations establish the financial guidelines such as the accounting and reporting systems as well as the nutritional requirements for the menus served.

Food service managers or directors plan school lunch menus based on the school lunch pattern, which lists requirements that must be met for reimbursable meals. School districts and agencies receive funds from the state and federal government to cover part of the cost of each meal served. Donated food commodities also are provided to districts based on the number of meals served. Donated commodities are those food products purchased by the government and made available to school food service programs.

The nutrition requirements for the reimbursable meals are summarized in "The School Lunch Pattern," page K-21.

For all school lunches to meet the nutritional goal of providing approximately one-third of the Recommended Dietary Allowances (RDA), it is recommended that lunches include the following:

- A vitamin A vegetable or fruit at least twice a week
- A vitamin C vegetable or fruit at least two or three times a week
- Several foods for iron each day

The offer versus serve program allows students in junior high school to select three of the five food items provided in the reimbursable meal. The two items not chosen are not placed on a student's plate. The local school food authority can decide whether or not to offer this option.

Students are declared eligible for free or reduced-price meals when their family income as related to the number of family members meets criteria established by the government. Every student in a school receives the application for free and reduced-price meals. The parent or guardian has the responsibility to complete the application and return it to the school.

Federal regulations require that students be involved in the food service program. Advisory groups such as youth advisory councils (YACs), which are sponsored by the American School Food Service Association, are one way in which this requirement can be met nationwide. YACs are being organized at the national, regional, state, and school district levels. They can serve as a means of communication between students, teachers, food service personnel, and school staff in all areas concerning school nutrition programs. For more information about YACs, see Appendix H.

Activities

Procedures	*Materials needed*
1. Ask the students what goods and services they purchase as consumers. List these purchases on the chalkboard. If purchasing lunch at school is not mentioned, suggest it and add it to the list. Tell the students that consumers have rights and responsibilities no matter what goods or services are used. As consumers of the school lunch, students can influence what is served and how it is served. Tell the students that they are going to be reviewing the nutritional requirements and constraints that are in the school food service program. The students will then identify ways to influence the food service program as it operates under the requirements and constraints of the School Lunch Act. Inform the class that understanding the nutritional requirements of the school lunch pattern can be	

Procedures	Materials needed
one basis for making judgments about whether to buy lunch at school and to determine what changes can be made to improve the program.	
If necessary, review the following information with the class.	
Explain that in school food service programs, the vitamin, mineral, protein, carbohydrate, and fat content of food is used to determine which foods are served together in a meal. List on the chalkboard the minimum amounts of food that are required for the meal pattern, using "The School Lunch Pattern" as a guide.	Handout: "The School Lunch Pattern," page K-21
Two ounces (56 g) of meat or meat alternate One to three servings of bread or bread alternate (8 servings a week) Three-fourths cup (180 g) fruit and/or vegetable Eight ounces (240 mL) of milk	
Tell the students that it is recommended that lunches include a food high in vitamin C at least two or three times a week. Foods high in vitamin A are to be served at least twice a week, and several foods providing an iron source are to be served each day. Include the fact that three ounces (84 g) of meat of meat alternate per meal and ten servings of bread or bread alternate per week are recommended quantities at the seventh through twelfth grade levels. Tell the students that the nutrient requirements (one-third of the Recommended Dietary Allowances) are met by following these recommendations and the school lunch pattern guidelines.	
2. Give each student a current month's school menu. Select the first day's menu. Ask the students to put an *M* by the meat or meat alternate, *B/C* by the breads and cereals, *F/V* by the fruits and vegetables, and *D* by the foods that are dairy products. (Note that, although there may be other dairy products in the menu, only milk counts toward reimbursement in the school lunch pattern.) Write the correct answers on the chalkboard and ask each student to correct his or her own work by crossing out any errors and writing in the correct answer.	School lunch menus School lunch recipes if necessary
Ask whether the menu met the requirements for the kinds of foods that must be served. If the menu does not meet the requirements, request two student volunteers to ask the food service manager for an explanation and to report back to the class.	
Inform the class that two ounces (56 g) of a cooked meat or meat alternate are required to be served as a protein source. Have the students circle the two-ounce (56 g) protein serving in the menus for the first week of the month. Discuss the correct answers.	
Tell the students that ¾ cup (180 g) of fruit and/or vegetable is required as a source of vitamins (especially A and C) and of minerals (especially iron). Have the students circle the fruits and vegetables in the menus for the third week of the month. Correct the answers.	
Tell the students to put a *C* by the foods that are a good source of vitamin C and an *A* by the foods that are a good source of vitamin A. Provide the transparency "Food Sources of Vitamin A, Vitamin C, and Iron" for the students to use as a reference. Have the students compare their vitamin A and C answers to the list and correct any errors.	Transparency master: "Food Sources of Vitamin A, Vitamin C, and Iron," pages K-22 and K-23

Procedures	Materials needed

Ask the class to name good sources of iron that are included on the menu. List these foods on the chalkboard. Use the transparency to provide corrections and additions to the iron sources the students name. Remind the class that the nutritional requirements of the lunch pattern control many of the foods that can be served. Tell the class that a regulation called offer versus serve affects what foods they choose to eat from the cafeteria. (With approval from the local school food authority, students may choose just three of the five items served in the meal pattern. The foods they do not choose are not put on their plates.) Tell the class that offer versus serve is one way in which the food service program has been changed recently to help meet the needs and wants of students.

3. Remind the students that as consumers they have a right to quality products at fair prices in the school cafeteria. They also have a responsibility to use positive and productive methods to exercise this right.

   Hand each student a copy of the work sheet "School Lunch—Hoorays and Helps." Mention specific elements to be considered, such as serving size, flavor of food, seasonings used, variety of foods served, temperature of foods, ways in which the food is served, and the atmosphere in the lunchroom. Tell the class that you will be collecting the work sheets later so that the suggestions can be presented to the food service manager for consideration. Allow time for each student to complete the work sheet.

   Work sheet: "School Lunch—Hoorays and Helps," page K-101

   Divide the class into groups of four. Give each group a clean copy of the work sheet "School Lunch—Hoorays and Helps." Tell the groups to discuss their individual work sheets and to reach a group consensus of five positive features of the lunch program and five ways in which they feel the food service program could be improved. The group is to record their conclusions on the clean work sheet and label it "Group Conclusions." Collect both the group and individual work sheets.

4. Ask the students to think of ways they can let their school administrators and food service personnel know how students feel about the food service program, what they like, and what can be done to improve the program.

   Remind the class that, when a suggestion is made about food service, this suggestion is not always implemented. One reason for this situation could be that there are requirements that serve as a constraint; for example, soft drinks cannot be used to fulfill the milk requirement of the school lunch pattern.

5. List on the chalkboard ways to influence the food service program. If forming a youth advisory council is not included, suggest this approach as one method of improving school food service programs and add it to the list.

   Write on the chalkboard the following definition of a youth advisory council: "A group of students, food service personnel, and school staff who work together to improve the school food service program."

   Remind the class that forming a youth advisory council is a very effective way to let food service personnel know how students feel about the program. Cite examples of activities youth advisory councils have used to try to influence the food service programs in their schools:

Procedures	Materials needed
a. Administering questionnaires to determine what other students like about food services and what they would like to see improved	
b. Informing other students about the guidelines and nutritional requirements for foods served through the lunch program	
c. Planning menus with the assistance of the food service director	
d. Tasting samples of foods that the food service manager identifies as meeting the nutritional requirements and determining which foods students would like to see offered	
e. Suggesting methods to improve and to speed up serving lines	
f. Improving the environment in the area where students eat	
Write on the board the process of how groups such as consumer advocate groups function. A youth advisory council usually functions in the same way:	
a. Determine the problem to be solved.	
b. Get the facts about any constraints that affect solving the problem.	
c. Suggest procedures to try to solve the problem.	
d. Carry out the procedures.	
e. Check to see how the group is doing. Is the problem being solved by these procedures?	
Remind the class that there are some considerations to keep in mind when working with other people to solve problems (e.g., considering the other person's feelings; making responsible, constructive statements; and remaining aware of the constraints of a program). Suggest to the students that one individual can make changes working alone, but that groups *usually* get more attention. Individuals who offer positive comments are usually more effective when they are trying to make changes.	
6. Identify one area for improving school food service that was listed by several groups when they identified things they would like to see improved in the school food service program. Review the steps identified in the process for consumer advocate groups and the considerations to keep in mind when dealing with other people. Ask the students to tell specific ways to improve the one area of school food service by: (a) saying what factual information controls the operation of the area; (b) determining the outcome the group agrees would improve the area of concern; (c) deciding how to work toward the outcome; (d) determining whether any class members would like to implement the ideas; and (e) recognizing that evaluation is part of the process when consumer action groups function.	
7. Ask for student volunteers to meet with the principal, school food service manager, and food service director to discuss how the student evaluation or assessment of the food service program can be used.	
8. Have the class complete the work sheet entitled "How Does Your Nutrition Knowledge Add Up?" Show and discuss the "Answer Key" transparency. Ask the students to correct any errors on their papers.	Work sheet: "How Does Your Nutrition Knowledge Add Up?" page K-102 Transparency master: "Answer Key to 'How Does Your Nutrition Knowledge Add Up?'" page K-103

Activities: Commercial Art Techniques

Procedures	*Materials needed*
When you are planning a lesson on *commercial art techniques,* you may wish to use the following activity in helping students to achieve the subject matter objective:	
1. Have the students develop commercial art skills and techniques by collecting magazine photographs and advertisements for prepared food products that are appealing from a visual point of view. Have the class discuss the following points: a. Why the advertisement was selected b. How the visual elements worked to the advertiser's advantage c. How the consumer would be influenced by the advertisement	Magazines
2. Have the students design an advertisement for foods that are sold in the school cafeteria using photos or drawings. This advertisement can aid in the promotion of a new or existing item that would increase its sale. (Design elements discussed in the magazine advertisement and their emotional appeal should be reflected in the students' work.)	Poster materials
3. Display the students' designs throughout the cafeteria for promotional and visual impact.	

Activities: English

Procedures	*Materials needed*
When you are planning a lesson on *survey interview skills,* you may wish to use the following activity in helping students to achieve the subject matter objective:	
1. Inform the students that they are going to practice interviewing techniques and survey skills with the goal of changing or modifying the school lunch program. (Both food service personnel and student surveys will be given.)	
2. Have the class brainstorm, with the teacher's assistance, questions to be used in interviewing the food service personnel. As the students refine the questions, emphasize that the questions should elicit information which would help them to better understand the food service program. Sample questions: a. In what ways does the budget affect your daily menu selection? b. How do you select a daily menu which incorporates foods from the Basic Four Food Groups? c. Do you consult the Recommended Dietary Allowances when you plan menus for teenagers? d. Is it difficult to plan a menu which is delicious yet nutritious? e. Do you receive foods at reduced cost or as a surplus from the government? f. What do you do with excess food? Have the students agree on a number of these questions for the interview.	
3. Assign two or three students to conduct the interview. After the interview, ask one of the three students to report the results of the interview to the class.	
4. Lead a class discussion to formulate the students' survey questions. Sample questions are as follows:	

Procedures	Materials needed
a. What do you like about your school lunches? b. What do you dislike about your school lunches? c. What would you like included in the school lunch menu? d. What kinds of choices would you like for lunch? (*Note:* Questions may also pertain to the cost of food, appearance of food, handling of food, and food service.) 5. Have the students agree on ten to 15 questions for their survey. Type the survey and prepare it for distribution. Ask other teachers to administer the survey in their classes or have your students administer the survey in other classes. Assign the students to groups for tallying the results. Ask the students to present the results to the food service personnel and to their fellow class members.	

Evaluation

Distribute the work sheet "The Student as a Food Service Consumer," pages K-104 and K-105. Have the students complete the work sheet; then discuss the correct answers.

Food Service Involvement

1. Discuss the lesson with the food service staff members and inform them regarding interviews and surveys that are planned as part of the lesson.
2. Ask the food service personnel to secure the needed menus.
3. Ask about the ingredients contained in the recipes so that the nutrient value can be determined (copies of recipes are usually available).
4. Invite the food service personnel to the classroom to discuss the findings of the survey or assessment. Both positive areas and areas of concern should be mentioned.

Notes

Answer Key:

"The Student as a Food Service Consumer," pages K-104 and K-105

Part I:

□ Spaghetti
△✓ Tomato sauce
○× Meat balls
□ Whole wheat roll
___ Lettuce wedge
△ Fresh apricots
× Raisin cookies
○ Low-fat milk

Part II:

Five activities food service advisory committees can use to influence food service in their school are (1) administering questionnaires; (2) informing students about the food service program regulations; (3) planning menus with the food service director; (4) taste-testing and evaluating new food items or recipes; and (5) suggesting methods for improving serving lines and cafeteria environment.

Part III:

A-4; B-2; C-3; D-5; E-6; F-1

Lesson 19. Identifying Information on Food Labels

An information acquisition lesson designed to help students identify the required and optional information found on food labels

Objective

After completing this lesson, students should be able to list the required and optional information found on food labels.

Key Facts

Food manufacturers are required by federal law to have the following information in English on labels of food and drink products:

1. The name of the product
   - The variety (cling peaches, Bartlett pears) and style (sliced or chunk) and the liquid in which the product is packed (in heavy syrup or in water)
   - The net weight of the product—the total amount in the container, including the liquid

     (*Note:* The manufacturer is not required to indicate the amount of packing liquid; so there is no way to determine how much fruit or vegetable is left after the water or syrup is drained. Some manufacturers are recognizing this concern and are voluntarily including both the net weight and drained weight measurements on their labels.)
   - The name and address (city, state, and ZIP code) of the manufacturer, packer, or distributor

     (*Note:* Any questions, comments, or complaints should be sent to the address printed on the label.)
   - The list of ingredients must be on the label in descending order of predominance by weight. For example, if sugar is listed first, it is present in the greatest amount and so on. The exceptions to this rule are the foods that fall under the standard of identity. Ingredients of foods in this group (for example, milk) do not have to be listed. California state law requires *all* processed foods sold in California to have a list of ingredients, except dairy products. Specific names of most ingredients must be given, except for spices, flavors, and colors, which can be stated in general terms. For flexibility in labeling, manufacturers can select shortening sources based on their cost and availability at a particular time; therefore, labels often read "partially hydrogenated animal *and/or* vegetable shortening (may contain beef fat *and/or* lard and soybean *and/or* cottonseed *and/or* palm oil)."
   - If the product does not meet the government's standards of identity, *imitation,* must be listed on the label. For example, ketchup is defined by the government as being sweetened with sugar (sucrose). Ketchup sweetened with honey (fructose) must have *imitation ketchup* stated on the label.
   - Special dietary properties must be stated, such as *salt-free, artificially sweetened,* or *enriched.*
   - Whenever any artificial flavors, colors, or preservatives are added, their use must be stated on the label. The exceptions for this rule include butter, cheese, ice cream, and foods that fall under the standard of identity.
   - Fresh dairy products must be stamped with an *open* (easy-to-read, uncoded) *pull date* (the last day that the product can be sold). After this date the product will be taken off or pulled from the shelf. The product is usable for a short period after this date.
   - Unless a juice is 100 percent juice, the label on the juice container must indicate the percentage of juice and be labeled a *drink,* not a *juice.* ("Hi C" is an example of this labeling rule.)

Nutrition information is optional on labels unless a nutritional claim is made or if the product is *enriched* or *fortified.* Included in nutrition information are the number of servings, serving size, calories, protein, fat, and carbohydrate per serving, and the percent of U.S. Recommended Daily Allowances (U.S. RDA) per serving for protein, vitamins A and C, thiamin, riboflavin, niacin, calcium, and iron. The (*) is used to indicate that the product contains less than 2 percent of the U.S. RDA for that nutrient. (Further information about U.S. RDA can be found in *Nutrition Education—Choose Well, Be Well: A Resource Manual for Secondary Teachers,* page 21.)

Inadequate food labeling presents a problem for people with special health concerns. For example, although manufacturers are required to list their ingredients in order of predominance by weight, nothing requires them to explain this procedure to the consumer. The amount of each ingredient, such as salt or sugar, is not generally listed; so the consumer is not able to determine the quantity of any one ingredient from reading the label. Artificial colors must be listed as artificial; however, the specific color does not have to be named (but for a few exceptions). Consumers who have allergic reactions to certain colorings may be unable to tell by reading the label whether those colors are in that food.

Standard of identity refers to the standard recipe used in the manufacture of certain products, such as ice cream, cheese, nonalcoholic beverages, mayonnaise, ketchup, macaroni and noodle products, flour, milk, cream, natural cheeses, processed cheeses, frozen desserts, food flavorings, salad dressing, canned fruit and fruit juices, fruit pies, fruit butters, jellies and preserves, and canned vegetables. These products *are not required* to have a list of any or all of the ingredients, even though a variety of ingredients can be added in addition to the standard ones. Labels may be incomplete on these products with no violation of the laws or regulations, except for ice cream for which most ingredients now must be listed.

The Delaney Amendment states that no additive will be permitted in any amount if the Food and Drug Administration (FDA) tests show that that additive causes cancer when fed to humans or animals.

The Generally Recognized as Safe (GRAS) list is composed of widely used additives. Substances that appear on the list can be used without government restraint, even though original testing was done by a small group of scientists a number of years ago. Many of the listed additives currently are being retested for their safety.

Enrichment of a product occurs when some of the natural nutrients that have been removed during processing are replaced. Often, the nutrients are replaced in amounts greater than the quantity naturally available. However, adding these nutrients does not compensate for those nutrients which have not been replaced. An example of an enriched product is flour; nutrients added are thiamin, riboflavin, niacin, and iron.

Fortification of a product means that additional nutrients are added to the product to make it more nutritious than in its original state. Examples of fortified products are orange drink, fortified with vitamin C; milk, fortified with viamin D; and salt, fortified with potassium iodide to prevent goiter (a thyroid growth caused by an iodine deficiency).

Currently, no federal law exists regarding the definition of the terms *organic* and *natural.* The Federal Trade Commission (FTC) has recommended that rules be issued governing how manufacturers may use these terms. A food could not be labeled *natural* if it or any of its ingredients has been more than minimally processed (processing involves cutting, grinding, or other procedures which change the form of the food) to make it safe or edible or to preserve it. A food labeled *natural* would also have to be free of any artificial ingredients, such as artificial flavorings, color additives, or chemical preservatives. The word *organic* could be applied only to those food products grown with organic fertilizers and minerals and without direct application of synthetic fertilizers or pesticides.

The State of California passed the California Food Act of 1979, which limits the use of organic terms (e.g., *organic, organically grown, naturally grown, wild, ecologically grown,* or *biologically grown*) to those agricultural products which have been grown or raised without the use of synthetic fertilizers, pesticides, chemicals, or drugs. Foods labeled *natural* are not covered by this Act.

Activities

Procedures	*Materials needed*
1. Ask the students to raise their hands if they have ever read a food label. Ask the students to identify what they remember being on the label. List the students' responses on a transparency for an overhead projector or on the chalkboard. After all the students' responses have been listed, cover the list so that it is no longer visible to the class. Inform the students that you will come back to it later.	
Distribute the "How to Read a Label" and the "Sliced Peaches Label" work sheets to each student. Discuss the various parts of the label. Tell the students to fill in the appropriate blank box on their work sheets as you discuss each part.	Work sheet: "How to Read a Label," page K-106 Work sheet: "Sliced Peaches Label," page K-107
Discuss the importance of this information on the students' food labels; for example, a label provides valuable and useful information about the product and assists consumers in making intelligent food selections. Compare the completed transparency master with the students' responses.	Transparency master: "How to Read a Label (Completed)," page K-108

Procedures	Materials needed
2. Distribute copies of the "Chicken Fry Label" to the class or use a transparency showing the label. Point out that this label has detailed information in the list of ingredients and explain why particular additives are present; for example, dextrin from corn, calcium propionate added to retard spoilage.	Handout: "Chicken Fry Label," page K-109
Define *standard of identity* (see "Key Facts"). Discuss the handout "Mayonnaise and Salad Dressing Labels." Point out that a standard recipe was used for one product which may be called mayonnaise. A different recipe was used for the other product; therefore, it may not be called mayonnaise.	Handout: "Mayonnaise and Salad Dressing Labels," page K-110
Explain to the students the definition of the terms *natural* and *organic* (see "Key Facts"). Discuss the label for a product which claims to be all natural. Point out that, because no government definition of what is and is not natural exists, food manufacturers often label products *natural* that have been processed in some way. The "Smith's 100% Natural Cereal Label" lists the ingredient brown sugar, which some people consider to be an unnatural product because it is highly processed. Other people consider any sugar a natural product.	Handout: "Smith's 100% Natural Cereal Label," page K-111
Explain to the students that sometimes the information on a label can be sketchy and that this lack of information can present problems to people with special dietary concerns. Discuss the "Lee's Fruit Pie Label." Point out that, when ingredients are listed *and/or,* the consumer has no way of knowing which of the products listed are actually in that particular product. For example, someone following a vegetarian diet may not be able to eat Lee's Fruit Pie because the type of shortening used is not clearly identified. Manufacturers use this *and/or* labeling technique so that they can use the cheapest shortening available at the time without having to change their labels.	Handout: "Lee's Fruit Pie Label," page K-112
Explain to the students that some products one would not expect to contain salt have high salt content. Discuss the "Jell-Quick Label" and point out that salt is listed as the fourth ingredient. Since ingredients are listed in descending order by weight, salt is the fourth largest ingredient (by weight) in the pudding. The label, however, gives no information about the actual amount of salt in the mix, so it is impossible to tell whether this pudding mix is quite high in salt or not.	Handout: "Jell-Quick Label," page K-113
Explain to the students the definition of *enriched* and *fortified* (see "Key Facts"). Discuss the "Pure Grain Elbow Macaroni Label." Point out that because this product is enriched, it must have nutritional information present on the label.	Handout: "Pure Grain Elbow Macaroni Label," page K-114
3. Distribute the "Name That Product" game sheet to the students. Explain that in this game, they will be looking closer at one of the things that is required to be on a label—the list of ingredients. Divide the class in half with equal numbers on both sides. Designate one side as Team A and the other as Team B. Explain the rules: The list of ingredients will be read aloud by the teacher or a student volunteer. Each student will then select an answer (A, B, or C) as the appropriate answer to the question, "What is this product?" A vote will be called after each ingredient list is read and an answer is chosen.	Game sheet: "Name That Product," pages K-115 and K-116

Procedures	Materials needed
Put the following on the chalkboard: Team A Team B 1. A 1. A B B C C Begin by reading the first ingredient list; then read the choices for answers. Allow one or two minutes for the students to choose their answers. Call on each team one at a time. Ask the members who voted for selection *A* to raise their hands. Repeat for selections *B* and *C*. Mark the numbers in appropriate places on the chalkboard. Repeat this process for Team B. Then give the correct answer. The team with the most votes for the right answer will receive a point. Record this score on the chalkboard so that the score is constantly visible to all the students. Follow this process for the remaining lists of ingredients on the game sheet. At the conclusion of the game, total up the points and inform the students which team won. Ask the students what they felt the purpose of this game was. What did they learn? Answers should include: We often do not know what is in our food; we cannot always identify food from what is listed on the label; and ingredients should be listed on the label providing consumers with useful information about the product. (If ingredients were not required, consumers would have *no way* of knowing what was in the product they were buying.)	
4. Distribute the "What's on Your Label?" work sheet. The students are to find a label at home and paste it on their papers, answering the questions about their specific labels.	Work sheet: "What's on Your Label?" page K-117
5. Have the students complete the "Label Crossword Puzzle." Correct the puzzle, using the answers provided in the "Answer Key," page 69. When you are planning a lesson on *writing numbers in words*, you may wish to use this activity.	Work sheet: "Label for the Crossword Puzzle," page K-118 "Label Crossword Puzzle," page K-119

Evaluation

Have students complete the work sheet "What's on the Label?" pages K-120 and K-121, and discuss their answers.

Food Service Involvement

1. Ask the food service personnel to make available a variety of labels from processed food items such as burritos, pizza, enchiladas, or corn dogs.
2. Request permission to visit the food service site and observe the storage facilities to see the variety of labels on canned, stored, or frozen products.
3. Ask food service personnel to obtain fact sheets and specification sheets for various foods from the food service department. (Both fact sheets and specification sheets accompany food products and provide more information than is normally found on a label. Fact sheets provide information about commodity food items, such as actual amounts of ingredients, yield, and suggested uses. Specification sheets provide information about purchased processed products, including actual amounts of ingredients.) Have the food service manager explain why no label is required on commodity items (because they cannot be sold or exchanged).
4. Have the students create labels for foods sold on campus.

Notes

Answer Key:

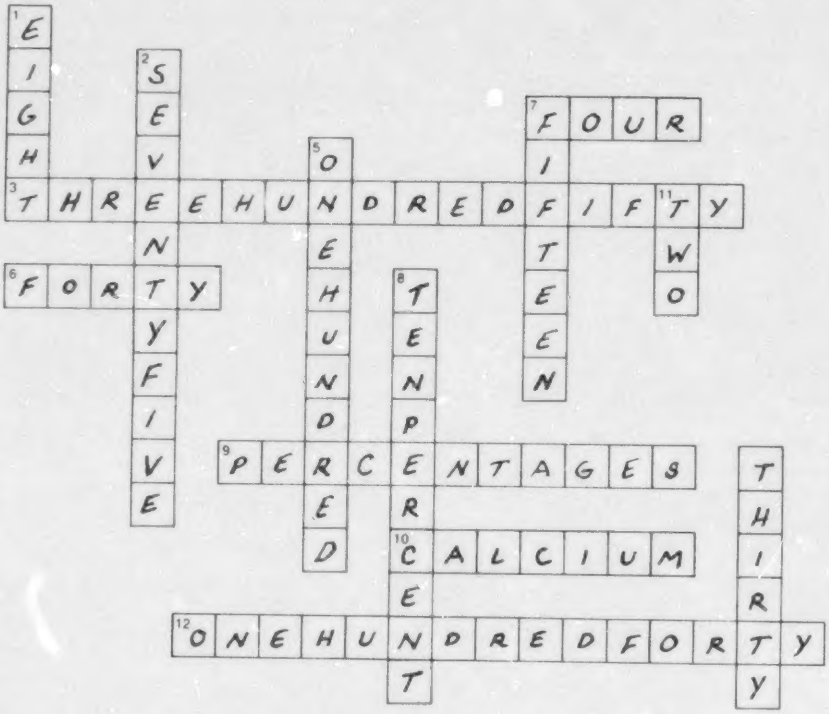
"Name That Product," pages K-115 and K-116

1. C
2. C
3. A
4. B
5. A
6. B
7. C

"What's on the Label?" pages K-120 and K-121

(1) Yes, directions on how to heat the soup
(2) No, the producer does not make any kind of nutritional claim.
(3) 10¾ ounces or 305 grams
(4) No
(5) No, salt is listed on the label as one of the ingredients of this product.
(6) The name of the product (variety; mushroom); how the product is packed; condensed; ingredients (listed in order by weight); net weight; name and address of the manufacturer
(7) The actual amount of salt; the name of the natural flavoring; reason for using monosodium glutamate

"Label Crossword Puzzle," page K-119


1 EIGHT
2 SEVENTYFIVE
3 THREEHUNDREDFIFTY
5 ONEHUNDRED
6 FORTY
7 FOUR
7 FIFTEEN
8 TENPERCENT
9 PERCENTAGES
10 CALCIUM
11 TWO
12 ONEHUNDREDFORTY
THIRTY

Lesson 20. Specifying Factors That Affect the Food Supply

An information acquisition lesson designed to help students specify two major factors that affect cost, quality, availability, and variety of food in the marketplace

Objective

After completing this lesson, students should be able to list two major factors that affect the cost, quality, availability, and variety of food in the marketplace.

Key Facts

Two terms which are important in a discussion of factors which affect food in the marketplace are defined as follows:

- *Supply and demand* is the balance between what is for sale and what consumers want to buy. In the American food system, retail food prices have tended to go up even when the prices paid to growers have gone down or stayed the same. This increase is due to the time and money required to pick, package, transport, distribute, and sell food.
- *A bumper crop* is a higher-than-average yield of food from plants due to soil conditions, weather, or improved farming techniques.

Factors that affect the cost, quality, availability, and variety of food in the marketplace are interrelated.

The representatives of the food industry and consumer advocates both recognize that changes in the food industry have greatly affected the cost, availability, and quality of food. The food industry maintains that the changes which have produced growth and profits have also led to increased efficiency, improved products, and responsible manufacturing and marketing strategies. Company growth and profits lead to lower prices and greater availability, variety, and quality of foods in the marketplace. Consumer advocates, when criticizing the food industry, maintain that consumers do not receive any benefits from the changes in the food industry. Critics claim that, when corporations expand, they gain greater control of the market, thereby manipulating the cost of food and the availability of food products.

The following are factors which influence the price and availability of a food product:

- *Supply.* Changes in the supply of a foodstuff are due to weather conditions, shortages of supplies and equipment needed to grow and harvest the crop, and government involvement in which crops are planted and in which crop subsidies are available.
- *Demand.* Changes in the demand for food products are due to consumers having more or less money to spend on food; new processed foods being made available; varying philosophies about reducing meat consumption; increasing consumption of whole grains, fresh fruits, and vegetables; higher prices for other foods; extensive advertising campaigns; and continuing research on the nutritional needs of the body.
- *Processing and Packaging.* Changes in labor and equipment costs, in government regulations, in technology (such as the development of new additives, or improvement of existing preservation methods), and in advertising costs will affect the price and availability of foodstuffs.
- *Import quotas.* These quotas, such as for beets and sugar cane, raise domestic prices by encouraging the import of foodstuffs at a price guaranteed by the government.
- *Weather.* The weather of a region is the state of the atmosphere at a given time and place with respect to the temperature, moisture, wind, and atmospheric pressure. The climate of a region is the prevailing weather. Weather conditions at a critical period in the growing cycle of crops as well as climate influence the availability of food produced.
- *Transportation.* Transportation involves the cost and availability of methods for transporting food.
- *Pesticides and food additives.* Pesticides and food additives are used in food production and processing to increase the yield of crops; to improve the growth rates of farm animals; and to improve the nutrient composition, shelf-life, taste, and appearance of food. All these uses result in an abundant and widely available food supply. The current issue about the use of these substances concerns the costs to society versus the benefits. Pesticides may kill helpful as well as harmful insects and leave toxic residues in foods. The side effects of some substances used to promote growth in farm animals may be harmful to humans.

Factors which influence the quality of a food product include the following:

- Weather conditions
- Ecological factors of pest control, fertilizers, soil conditions, and the quality of the air

- State of ripeness at harvest and consumption
- Seasonal variations in the characteristics of locally grown food products
- Food handling procedures, including processing, use of food additives, and storage conditions

These factors are discussed completely in the story "The Long Road from Farm to Market," pages K-123 and K-124.

Factors which influence the price of a food product include the following:

- *Season.* If the product (fruit or vegetable) is in season, it will be more abundant, and the price may come down.
- *Weather.* If a dramatic change in weather occurs, this change could destroy a crop or create a bumper crop.
- *Disease.* Breakthroughs in scientific research could help lower costs by making products less susceptible to diseases that could destroy them and raise prices.
- *Consumer acceptance.* If consumers boycott a product, the price might come down.
- *Rising costs.* Rising costs of fuel for machinery, irrigation, farm machinery, transportation, labor, fertilizers, pesticides, ingredients for processed foods, and packaging materials are all involved in the price of food.

Activities

Procedures	*Materials needed*
1. Display a piece of poor quality fruit. Ask the class to identify the poor quality characteristics of the fruit displayed (for example, shriveled, misshapen, poor condition of skin, bruises, blemishes, bad taste, or lowered nutrient content). Tell the students that there can be many reasons why food is of poor quality. Ask them to write individually as many possible causes for poor quality foods as they can think of in four minutes. List the students' comments on the chalkboard. If the students do not provide the following items, add them to the list: growing conditions, including weather; ecological factors, such as the use of pesticides, commercial fertilizers, quality of the air and soil conditions; state of ripeness of the food at harvest; and food handling methods, including processing, use of preservatives or additives, packaging, and storage.	Piece of poor quality fruit
2. Distribute the work sheet entitled "In What Ways Is Food Affected on the Long Road from Farm to Market?" Read the story "The Long Road from Farm to Market," section by section. Ask the class the questions in the story and get verbal answers. When each section has been read, tell the students to complete the corresponding section of their work sheets. Discuss the correct answers with students using the "Answer Key."	Work sheet: "In What Ways Is Food Affected on the Long Road from Farm to Market?" page K-122 Story: "The Long Road from Farm to Market," pages K-123 and K-124
3. Identify three controversial areas that affect the quality of food (using pesticides, using chemical fertilizers, and putting additives in prepared food). Divide the class into groups of five to six students. Give each student a "Polar Forces" work sheet. Tell the groups to select one of the controversial areas. When the selection is made, each student is to write down arguments for and against using the controversial substance. Have each student discuss his or her list with the other students in the group. Each group should appoint a recorder to compile a list of all the pros and cons the group members identify. Tell the students that each group will be reporting to the class. Have the students report by group their pro and con lists for the controversial area. As appropriate, add missing pros and cons to the students' lists when the students have finished reporting.	Work sheet: "Polar Forces," page K-125
4. Instruct the students to complete the work sheet entitled "From Farm to Market," using the completed work sheet "In What Ways	Work sheet: "From Farm to Market," pages K-126 and K-127

Procedures	Materials needed
Is Food Affected on the Long Road from Farm to Market?" for reference. When the work sheets are completed, have the students swap and correct each other's papers while you read the correct answers found in the "Answer Key."	
5. Distribute a copy of the newspaper food advertisements to each student. Allow two to three minutes for the students to examine the advertisements carefully. Ask the students to tell one main thing they noticed about the advertisements. (The responses should be that the price for all three products went up from the first advertisement to the last one.) Ask the class to think about *why* there was a price change. Emphasize that each page of advertisement is for the same product. Ask, "Why then is there a difference in price?" Call on the students to respond and list their responses on the chalkboard. (Their answers should form the list of factors that influence the cost of food in "Key Facts." The list should include season, weather, disease, consumer acceptance, rising costs, and transportation.) Explain the concept of supply and demand, tying together the list on the chalkboard with the increase (or decrease) in the cost of products.	"Food Advertisements," pages K-128 through K-130
6. Divide the class into *five* groups of approximately five to six students in each group. Assign a number to each group (group number one, group number two, and so on) and inform the students of their group's number. Tell each group to select one person to be the recorder who writes down the group's answers. Distribute a "Group Prediction Sheet" to each group and have the recorder fill in the top part with the group's number. Begin the activity by passing out Situation Card Number One, one copy to each group. Allow the students three to five minutes to come to a group consensus and mark their predictions on their "Group Prediction Sheets." Repeat with the remaining situations. Conduct a brief discussion on each situation.	Work sheet: "Group Prediction Sheet," page K-131 "Situation Cards," pages K-132 and K-133 "Situation Cards—Teachers's Key," page K-134

Activities: World Geography/Agricultural Revolution

Procedures	Materials needed
When you are planning a lesson on *world geography* and the *agricultural revolution,* you may wish to use the activities in this section to help students achieve the subject matter objective. 1. To make students aware of those factors that affect our food supply, ask the class the following questions: a. Which do you think would be easier, producing enough food or distributing it fairly? Explain your answers. b. Why are food prices high in some parts of the world? (Food is scarce, and the demand for it is great.) c. Why is food sometimes scarce in developed countries? (Weather variations, large exports, or shortages of fertilizer or pesticides occur.)	

Procedures	Materials needed

d. Why does the demand for a particular food sometimes increase? (Consumers have more money; persuasive advertising, shortages, and population increases have an effect; or changing concerns about the health and safety of certain foods occur.)
e. What additional factors affect food prices in developed countries? (Fuel prices, wages, inflation, food production, and processing are factors.)
f. How do weather and seasons influence food availability and variety? (Environmental factors are influences.)
g. How do large organizations involved in food production and distribution play a role in the cost and availability of foods? (They may be more efficient, economical, or convenient; and they influence the quality and standardization of food products.)
h. How do superstitions, taboos, and prejudices affect the types of food in the marketplace? (Foods that could be raised easily or are widely available may not be consumed, possibly creating a high demand for certain other foods.)
i. How does the energy crisis in the United States affect food production? (Increased fuel and fertilizer costs occur.)

Have the class write a composition about how these factors affect our food supply.

2. Ask the students to make a collage or a photo essay on food availability. Have them give one of the following titles to the collage or photo essay: (a) "A Supermarket in a Developed Country"; (b) "Food in a Less Developed Country"; or (c) "Seasonal Food."
3. Ask the class to compare and contrast two countries with regard to the variety of food produced, availability, cost of foods, and so on. Inform the students that this assignment can be done as a research paper or in collage format and requires library research. It can be done in pairs or in small groups.
4. Ask the students to imagine that they are visitors from another planet sent here to investigate the food distribution patterns in the United States, cost of foods, variety of foods, and so on. Have the students write a report for their planet based on what they observe. For extra credit, have the students compare another country and the United States from the point of view of an alien.
5. Ask the class to do a "Fantasy Trip." As a small group discussion or paragraph writing assignment, have the students describe what people could expect to see missing from the supermarket and added to the shelves by the year 2000 and the year 2050. Be sure that the students explain their reasoning.

Evaluation

Have the students complete the work sheet "Factors That Affect Food Availability," pages K-135 and K-136, and discuss their answers.

Food Service Involvement

1. Inform the students that the food service operation in each district deals with food vendors and brokers who sell foods, equipment, and cleaning and packaging materials. Invite the food service director to contact the vendors and brokers who serve the district and request that a salesperson come to the classroom to discuss the prices, availability, and quality of the foods that the food service department purchases for student consumption. (This activity could be arranged for a time when the vendor or broker is in the district to conduct his or her business.)

2. Invite the food service manager to share with the students how changes in availability, price, and quality affect what they are served. The manager could answer the question, "Why is the menu sometimes changed?" Ask the food service manager whether he or she could share information about the fluctuation in product prices for the school sites and how these changes affect the school menu.

Notes

Answer Key:

"In What Ways Is Food Affected on the Long Road from Farm to Market?" page K-122

1. Growing conditions that affect plant food production:
    - a. Weather conditions
    - b. Use of pesticides
    - c. Use of commercial fertilizers
    - d. Condition of the soil
    - e. Quality of air
2. Conditions of harvest and transportation that affect the quality of plant foods:
    - a. State of ripeness at harvest
    - b. Proper temperature
    - c. Protection from bruising and crushing
3. Methods used to handle food during processing can affect its quality:
    - a. Amount of processing
    - b. Preservatives added
    - c. Additives used
    - d. Packaging
    - e. Storage

"From Farm to Market," pages K-126 and K-127

1. Quantity
2. Temperature
3. Air
4. Fertilizer
5. Soil
6. Preservatives
7. Variety
8. Packaging
9. Storage
10. Pesticides
11. Additives
12. Pollution
13. Conditions
14. Bruised
15. Methods

"Factors That Affect Food Availability," pages K-135 and K-136

I. 5 and 8

II. 1, 2, 4, 5, 6, 8, and 9

III.
- 1. Preservatives
- 2. Air
- 3. Soil
- 4. Variety
- 5. Packaging
- 6. Fertilizer
- 7. Storage
- 8. Pesticides
- 9. Additives
- 10. Quantity
- [illegible] Pollution
- [illegible] Temperature
- 13. Bruised
- 14. Methods
- 15. Conditions

Lesson 21. Sharing Feelings About Influencing the Food Industry

An open-ended discussion lesson through which students have an opportunity to share ideas, opinions, and feelings about the ways in which a consumer can influence decisions made in the food industry

Procedures	*Materials needed*
Discussion Sequence	
1. Inform the students that the purpose of today's lesson is to give them an opportunity to share their opinions and ideas about ways in which a consumer can influence the decisions made in the food industry.	
2. Tell the students that, to help them begin thinking about the topic, you are going to hand out a story about a man who does not know what he can do to influence decisions made in the food industry.	
3. Hand out and have the class read "Saturday Brunch Blues." Also hand out "Sugar Content of Breakfast Cereals by Weight."	Handout: "Saturday Brunch Blues," page K-137 Handout: "Sugar Content of Breakfast Cereals by Weight," page K-138
4. After the students have finished reading, tell them that they will now have a chance to express their opinions about this topic.	
5. Present the discussion rules outlined in the "Introduction to the Curriculum."	
6. Present the discussion question: "What Should Mr. Bell Do?"	
7. Conduct the discussion.	

Lesson 22. Exploring Values About the School Food Service Program

A values awareness lesson in which students explore their values about the school food service program

Activities

Procedures	*Materials needed*
Do the following activities prior to the lesson (within one week before the lesson is given): 1. Inform the students that they will be studying school food service programs. To prepare for this activity, tell the students that they will be recording their opinions and the opinions of one other student about their school food service program. 2. Inform the students that they will be acting as reporters to record these opinions. A good time for students to do this task would be during or directly following the lunch hour. 3. Divide the class into three groups. Each one of them will report on a different aspect of the school food service program. 4. Designate meeting areas for each of the three groups and allow the students to move to their group's area. 5. Direct each group to select two co-leaders. One will be responsible for making a chart representing the group's findings on large chart paper, and the other will make an oral report. 6. Inform the groups of their specific tasks: a. Group A will report on the quality of food. b. Group B will report on the variety of food. c. Group C will report on the dining environment	
7. Distribute the reporting forms to the appropriate groups, two to each student. 8. Meet briefly with each group to explain its specific task. (For example, you may need to clarify the meaning of *quality of food, appearance,* and so forth listed on the chart.) When the explanations are completed, allow the students to return to their regular seats.	Reporting forms: "Quality of Food." page K-139 "Variety of Food," page K-140 "Dining Environment," pages K-141 and K-142
9. Inform the class that each student will be responsible for filling out two forms. One form will reflect each student's own opinion, and the second will reflect the opinion of a student chosen to be interviewed. The completed forms will be shared within the groups and consolidated into a group report. 10. Tell the students the due date of the assignment. When the forms are completed, do the following: a. Inform the students that the purpose of this lesson is to give them a chance to explore their values about the school food service program. b. Tell the students that their first task is to share the content of their completed forms with their group. The group will then produce a chart reflecting the opinions of all members (made by one co-leader) and present an oral report to the entire class summarizing the interview results (presented by the second co-leader).	

Procedures	*Materials needed*
c. Show the class the samples of the three charts to be completed. Give an example of how one or two items on the chart could be completed. For example, Sample Chart Two, "Group B, Variety of Food," lists variety of textures. Under this item, the students could list crisp vegetables. Sample Chart Three, "Group C, Dining Environment," lists noise level. Under this item, the students could list loud shouting. Use the chalkboard or make a transparency of the charts. Distribute a copy of the appropriate chart, some chart paper, and a chart pen to each group.	Sample Chart One, page K-143 Sample Chart Two, page K-144 Sample Chart Three, page K-145 Chart paper Chart pens
d. Answer any questions the students have and then tell them that they will have 15 to 20 minutes to finish this task in their groups. Encourage everyone to write large enough so that the students at the back of the class will be able to read the charts. Designate meeting areas for each of the three groups and allow the students to move to the group meeting areas.	
e. Monitor the groups' progress and provide help while moving among the groups. During this time, write the following as a heading on the chalkboard: "One of my values about a school food service program is that it provides . . ."	
f. Allow the students to return to their regular seats at the end of the 15 to 20 minutes, or when the task is complete. Ask the co-leaders who made the charts to come forward and post their completed charts so that the class may see them. (Do not cover the chalkboard; you need to use it.)	
g. Call the Group A oral report co-leader to come forward and explain the contents of his or her group's chart to the class. Allow approximately three to four minutes for reporting. Ask the Group A co-leader to answer any questions the rest of the class may have. Afterward, the co-leader may return to his or her seat.	
h. Ask the class the following question after the Group A presentation: "Based on what you just heard, what would you *like* to have that would improve or maintain the quality of food in our food service program?" (Possible answers might be a nutritionally balanced meal, a variety of textures, crisp vegetables, nonsugar desserts, a maximum of one starchy food per meal, and so forth.)	
i. List the students' responses on the chalkboard under the following heading: "One of my values about a school food service program is that it provides . . ."	
j. Repeat steps g through i for sample charts two and three.	
k. Call the students' attention to the chalkboard. Tell them that all of the items they have listed are values that they have about the school food service program. Write a values statement for the students. For example, "One of my values about a school food service program is that it provides crisp vegetables;" or "Another of my values about a school food service program is that it provides quiet music in the dining environment."	
l. Tell the students that they will now be recording one of their values about the school food service program.	
m. Distribute half sheets of paper or 5 x 7-inch (13 x 18 cm) cards to the students. Direct them to copy the heading from the chalkboard as the beginning of the values statement: "One of	Half sheets of paper or 5 x 7-inch (13 x 18 cm) cards

Procedures	*Materials needed*
my values about a school food service program is that it provides . . ." and then to add the element that reflects one of their own values (such as skim milk or bright-colored walls or several cultural foods per month). n. Collect the values statements and post them around the room. Make a bulletin board display or share these statements with the food service department.	

Food Service Involvement

If you choose, discuss the results of the lesson with the food service staff, or invite a food service staff member to the class discussion.

Lesson 23. Examining Food-Borne Illnesses

An information acquisition lesson designed to help students identify two organisms that cause food-borne illnesses and two foods that are particularly susceptible to such organisms

Objective

After completing this lesson, students should be able to list two organisms that cause food-borne illnesses and two foods that are particularly susceptible to such organisms.

Key Facts

Although many consumers fear that the quality and safety of our food supply is in danger from the use of pesticides and additives, the Food and Drug Administration (FDA) advises that microbiological contamination is a far more important problem. Because most incidents of food-borne illnesses go unreported, an actual count of total illnesses cannot be determined. Reported accounts of food-borne illnesses each year probably average several million.

All persons who handle food must be aware of conditions and organisms that produce food-borne illnesses.

Bacteria may be present in any food. They are everywhere in the environment. People must take the responsibility to protect themselves and practice good sanitation techniques.

Bacterial organisms are one-celled microorganisms that reproduce by dividing. To grow, they need food, warmth, moisture, and time.

Some microorganisms contaminate food while others produce harmful toxins or disease organisms.

Some illnesses caused by contaminated foods are relatively mild. The standard symptoms are nausea, vomiting, and diarrhea. In more severe cases fever occurs, the nervous system is affected, and death may even result.

Three common organisms that cause food illness are clostridium botulinum (botulism), salmonella, and staphylococcus.

Botulism occurs from food poisoned by the toxin from clostridium botulinum, a bacterium that grows in the absence of air and has the ability to form spores. Botulism is rare, but it can be fatal. Improperly processed canned foods in which spores remain are the principal sources of botulism. Safe home canning procedures should be followed, using a pressure canner for low-acid foods. Any foods that are home canned and not properly processed or any foods in a container with a bulging lid should be discarded.

Salmonella organisms are found most commonly in raw animal products—poultry, eggs, and meat. The organisms multiply at temperatures between 40° and 140° Fahrenheit (4° to 60° C). Cooking destroys the organism in the food. When large amounts of salmonella organisms are eaten, they multiply in the gastrointestinal tract and produce vomiting, diarrhea, abdominal cramps, and fever.

Staphylococcus organisms are most frequently found in the nose, in the throat, on the hair, and on the skin. Anyone who prepares food can unknowingly contaminate food with this organism. When the bacteria multiply, a toxin is produced, which heat does not destroy. Custard, ham, meats, gravies, stuffing, and poultry dishes are foods susceptible to staphylococcus organisms.

A general rule to follow to prevent food-borne illnesses is to keep cold foods below 40° Fahrenheit (4° C) and hot foods above 140° Fahrenheit (60° C).

Activities

Procedures	*Materials needed*
1. Explain to the class: "To visualize organisms that cause food poisoning or illness (because they are so small that they cannot be seen without a microscope), we are going to have an 'ugly organism' contest." Distribute paper, crayons, felt-tip pens, colored paper, glue, and scissors to the students. Tell them to draw, color, and create an "ugly organism," filling the paper with the creature. The ugly organism should have shape, color, and personality and should represent a "bad guy." Select four students to pick eight ugly organisms for a class vote. From these organisms each student in the class chooses three	12 x 18-inch (30 x 46 cm) white paper Crayons Felt-tip pens Colored paper Glue Scissors

Procedures	Materials needed
"uglies," and the three with the most votes win. Place the winning "uglies" in full view of the class. Attach large printed name tags to the pictures. (Name tags include (a) salmonella, (b) staphylococcus, and (c) botulism.) Have the class pronounce and write the names of these organisms.	
2. Review the food signs. Display the items listed on the food signs on a table in front of the class. Each item is labeled, stating how the food was prepared and stored. Signs describing what food-borne illness is involved in each of these situations will be placed face down and will remain so until the food service manager conducts his or her section of the lesson. (See Food Service Involvement.)	"Food Signs," page K-146 "Food-Borne Illness Signs," page K-147
Ask the class, "What do these foods have in common?" Give the students time to respond. Have them answer until you get an appropriate response: These food items are carrying organisms that will cause food-borne illness or food poisoning.	
3. Define food handling for students. Write on the chalkboard: "Food handling is everything that happens to food while it is being grown, processed, preserved, stored, and prepared for eating." Inform the students that they will be focusing their attention on how food not properly handled may lead to the occurrence of food-borne illness.	
Distribute the handout "Newspaper Articles" and ask the class to read the articles. Explain that these articles are just examples of items found in newspapers describing outbreaks of food-borne illnesses.	Handout: "Newspaper Articles," page K-148
Ask the following questions: "How many times have you had an upset stomach, abdominal pains, diarrhea, or perhaps a headache? Did you think that these symptoms might have been a touch of flu?" Tell them that this could have been possible, but that they also might have come in contact with some mishandled food carrying organisms and been victims of food poisoning or infection.	
Define the term *food poisoning* for the students. "Food poisoning is a disorder caused by ingesting any of the following: (a) food containing harmful bacterial organisms and their toxic products; (b) food contaminated by chemical residues; or (c) substances not suitable for use as food.	
Explain that this lesson focuses on food poisoning caused by ingesting food containing harmful bacteria and their toxic products.	
Explain that bacteria may be present in any food because bacteria are everywhere in the environment. Each of us has the responsibility to protect ourselves and our families from illnesses caused by some bacteria. These bacterial organisms are one-celled microorganisms that reproduce by dividing. To grow, they need food, warmth, and moisture.	
4. Distribute the "Types of Food Poisoning" work sheet to the students. Show "Types of Food Poisoning (Transparency Master)" and discuss the information contained on it. Tell the students to fill in their blank copies while the teacher reads the information.	Work sheet: "Types of Food Poisoning," page K-149 "Types of Food Poisoning (Transparency Master)," page K-150
5. Give the students the work sheet entitled "Food-Borne Illness," and instruct them to read the directions and fill in the blanks, using their chart as a resource. Tell the students that they may work in pairs if they wish.	Work sheet: "Food-Borne Illness," page K-151

Procedures	*Materials needed*
6. Give the students the word search work sheet "Safety and Sanitation" and instruct them to find all the words listed at the bottom of the page and circle them. When everyone has completed the word search, go over the answers. Each student will correct his or her own paper.	Work sheet: "Safety and Sanitation," page K-152 Answer Key, page 82

Evaluation

Have the students complete the work sheet "Food Poisoning," page K-153, and discuss their answers.

Food Service Involvement

1. Ask the food service manager to discuss proper food handling techniques. He or she will reveal what organism is carrying the food-borne illness in each food presented in step 2 of the "Activities" section. Arrange for students to view actual food handling in the school's eating facility. Proper food handling techniques for certain kinds of foods are as follows:

   a. Raw chicken drumstick—proper technique: The chicken should have been removed from the freezer, placed in a clean, covered container, and defrosted in the refrigerator. The chicken should have been cut up with a clean knife on a clean cutting board. The cutting board and knife should be cleaned with hot, soapy water after each use.

   (*Salmonella organisms* are the culprits here.)

   b. Potato salad—proper technique: The potatoes should have been cut on a clean cutting board. They should have been quickly cooled and dressed, then refrigerated until used.

   (*Salmonella organisms* are the culprits here.)

   c. Bulging can of green beans—proper technique: The contents of a bulging can should never be used. The can should be thrown away where no one will come in contact with it. Foods canned in the oven do not reach high enough temperatures to be properly canned. Green beans need to be canned in a pressure canner because they are a low-acid food.

   (*Clostridium botulinum* is the organism in this food.)

   d. Chicken salad sandwich—proper technique: All food handlers should refrain from handling any food when they have open wounds on their hands. The food handler should have worn plastic gloves.

   (*Staphylococcus organisms* are involved here.)

2. Ask the assistance of the food service manager in providing a tour at a convenient time to illustrate what is the proper temperature setting of refrigerators: 40° Fahrenheit (4° C) (show the thermometer) and freezers at 0° Fahrenheit (-18° C); how steam tables are set above 140° Fahrenheit (60° C) to keep hot food hot; how foods are covered for cleanliness; how proper thawing is achieved; and what regulations are required at the site (hair nets, plastic gloves, and so forth).

Notes

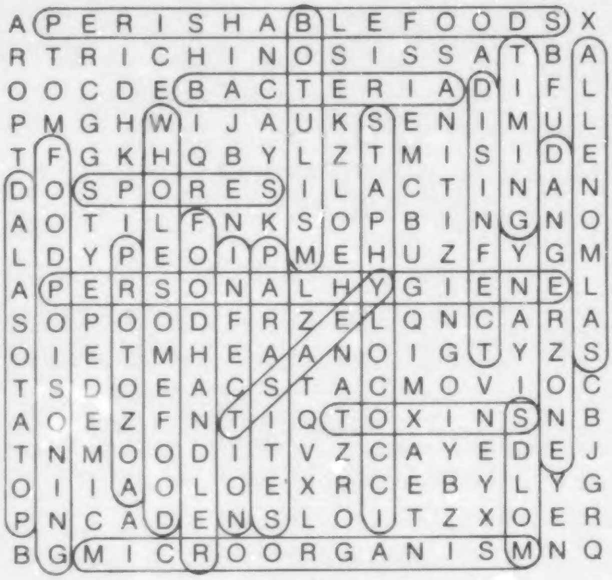
Answer Key:

"Food-Borne Illness," page K-151

I. A. Staphylococcus; B. Salmonella; C. Clostriudium botulinum

II. A. S; B. S; C. CB; D. SA; E. S; F. CB; G. SA

"Safety and Sanitation," page K-152



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A P E R I S H A B L E F O O D S X
R T R I C H I N O S I S S A T B A
O O C D E B A C T E R I A D I F L
P M G H W I J A U K S E N I M U L
T F G K H Q B Y L Z T M I S I D E
D O S P O R E S I L A C T I N A N
A O T I L F N K S O P B I N G N O
L D Y P E O I P M E H U Z F Y G M
A P E R S O N A L H Y G I E N E L
S O P O O D F R Z E L Q N C A R A
O I E T M H E A A N O I G T Y Z S
T S D O E A C S T A C M O V I O C
A O E Z F N T I Q T O X I N S N B
T N M O O D I T V Z C A Y E D E J
O I I A O L O E X R C E B Y L Y G
P N C A D E N S L O I T Z X O E R
B G M I C R O O R G A N I S M N Q
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III. "Food Poisoning," page K-153

1. T
2. T
3. F
4. T
5. F
6. T
7. T
8. T
9. F
10. T
11. T
12. T
13. T
14. T
15. F

Lesson 24. Preparing Food to Maximize Nutrient Retention

An information acquisition lesson designed to help students identify three ways of cooking food to maximize nutrient retention

Objective

After completing this lesson, students should be able to list three ways of cooking food to maximize nutrient retention.

Key Facts

B vitamins, vitamin C, and some minerals in foods dissolve when cooked in water. Therefore, the use of as little water as possible and a short cooking time is recommended for maximum retention of vitamins and minerals. Also, the fat-soluble vitamins A, D, E, and K will dissolve in fat, so frying vegetables will also result in vitamin losses.

Vitamin C is easily destroyed by exposure to heat and air. Cooking vegetables containing vitamin C for as short a time as possible in a closed container retains more of the vitamin. Since vitamin C is destroyed by exposure to oxygen, the cooking water should be boiled a few minutes before the raw vegetables are added. This method will allow excess oxygen to escape from the cooking water and prevent a certain amount of vitamin loss during the cooking period. The more surface area of the vegetables exposed to water and air, the greater will be the nutrient loss in cooking.

Baking soda will destroy some vitamins. It should not be added to vegetables.

Vegetables should be cooked only until they are tender so that their nutritive value and flavor will be preserved. Vegetables that are overcooked become mushy and lose their shape. They lose nutrients and flavor and also undergo color changes.

To maximize and protect the vitamin C content of fruits and vegetables, one should be sure that they are sun ripened, chilled immediately after ripening, and kept cold until they are used.

Microwaves are high frequency radio waves or tiny waves of energy. Microwave energy can be used to cook food and involves the following steps:

1. Electrical energy is transformed into microwave energy by a tube called a megnatron. This tube, like a broadcasting station, sends out waves of high frequency energy in the cavity of the microwave oven. (See "Transparency I," page K-155.)
2. Microwaves are then bounced off the metallic oven walls, floor, and ceiling in irregular patterns. Microwaves are reflected by metal or foil. (See "Transparency I," page K-155.)
3. Microwaves pass through certain substances, such as paper, plastic, glass, and ceramic just as light passes through a window. These materials may warm up eventually as heat transfers from the food to them. (See "Transparency II," page K-156.)
4. Microwaves are absorbed by solid foods and liquids, causing the molecules of the food to agitate, produce friction, and turn into heat. (See "Transparency II," page K-156.)
5. Microwaves penetrate about ½ to 1½ inches (1 to 4 cm), depending on the food. After that, heating occurs through transference or conduction. (See "Transparency II," page K-156.)

After the microwave cooking process has ended, heat continues to be conducted through the food. Therefore, it is important to allow the food to stand before serving it, because it is actually still cooking. The length of the standing time varies, depending on the volume and density of the food. It is often advisable to undercook the food slightly and let the process finish during the standing time.

In stir-frying, the food is cooked quickly in a small amount of oil. The hot oil not only seals in the food's flavor but also preserves its original color, crispness, and nutrients. Although some vitamins may dissolve in the small amount of oil, the oil adheres to the vegetable so that the vitamins are not lost.

A wok is a spherical pan in which stir-frying may be done. Its shape permits foods to be tossed rapidly in hot oil without becoming greasy. Once the food is cooked, it can be pushed up the sides of the wok to stay warm without getting overcooked. Foods that are used in stir-frying may be diced, sliced, shredded, or minced. Most Chinese dishes require more preparation time because the food is cut into uniform pieces before being cooked. This precutting allows for a mingling of flavors and improves the penetration powers of seasonings. (See the "Wok" transparency, page K-157.)

Foods cooked by steaming are placed in the perforated container of a steamer over boiling water and covered tightly.

Vegetables cooked only to the crisp stage have a better color, retention of nutrients, and flavor than those cooked until soft.

Activities

Procedures	Materials needed
1. Prior to the students' coming into the classroom, prepare broccoli, using a large amount of water and boil this vegetable for at least a half hour without a cover. (Save the cooking water for step 5 on page 85.)	Broccoli Equipment for food preparation
Also prepare another bunch of broccoli using a small amount of water, a short cooking time, and a covered pan. (This is the correct way to cook broccoli, and it preserves the nutritional content.)	
2. Review the basic facts that should be applied when preparing vegetables in order to retain their nutrients. Use an overhead projector and the prepared transparency "Tips on Vegetable Preparation" to do this activity.	Transparency master: "Tips on Vegetable Preparation," page K-154
3. Ask the students how many of them have a microwave oven at home and what foods they prepare in it.	
Ask students what microwaves are (high frequency radio waves or tiny waves of energy). Using an overhead projector and transparencies I and II, discuss how a microwave oven works. (See "Key Facts.")	Transparency masters I and II, pages K-155 and K-156
Mention that glass covers, plastic wrap, wax paper, glass plates, and glass saucers trap steam and hasten cooking. This process is desirable in retaining nutrients. Write the term *standing time* on the chalkboard and discuss its meaning. (See "Key Facts.")	
Tell the students that you want to prepare some broccoli in a microwave oven. Ask them what steps would be needed to prepare it. (Find the correct container, prepare the vegetable, add the vegetable to the container, use a lid or plastic wrap to trap the steam and to hasten the cooking.) The teacher or a student may demonstrate these steps in the correct order. Review how food gets cooked in a microwave oven. Remind the class that a microwave cookbook should be referred to for the correct power setting and cooking time for various foods. Mention, too, that stirring may be necessary during the cooking period to help distribute moisture from the bottom of the dish to other parts of the food. Also tell the class that when this cooked dish of broccoli is removed from a microwave oven, it will have maintained its shape, color, and vitamins.	Microwave oven Broccoli Container Lid or plastic wrap
Compare broccoli cooked in a microwave oven with the overcooked broccoli.	
Ask the class why vitamins were retained by microwave cooking (no water to dissolve vitamin C, plastic cover or lid to trap steam and hasten cooking, short cooking period).	
4. Write the term *stir-fry* on the chalkboard. Ask the class whether anyone is familiar with stir-frying and the name of the piece of equipment associated with stir-frying.	
Show the transparency of a wok and explain the history and principles of stir-frying. Ask what other pieces of equipment can be used if a wok is unavailable (electric skillet, heavy fry pan).	Transparency master: "Wok," page K-157

Procedures	*Materials needed*
Demonstrate the art of stir-frying to the class, using an electric skillet or wok, broccoli, green beans, and carrots. As the demonstration progresses, have the students describe the steps that are being performed. (Cut up vegetables; heat pan over high heat; add a small amount of oil, and heat to below the smoking point; add vegetables; and quickly stir for approximately four to five minutes.) Serve a small amount of the finished product to each student. (Refer to the "Stir-frying" handout for information.)	Electric skillet or wok Broccoli, green beans, carrots Oil Large spoon or spatula Knife
Before the students taste the product, have them notice the harmonious blend of shapes and colors. After the students have tasted the food, make them aware of the blend of flavors and the crispness of the vegetables.	
Point out to the students that although the vegetables were cut into small pieces, nutrient loss was not great because no liquid was drained from the vegetables when they were served. Also mention that nutrients were sealed in with the use of the hot oil. Pass out the "Stir-frying" handout.	Handout: "Stir-frying," page K-158
5. Show the students the "Basket Steamer" transparency and ask them how many are familiar with it and what it is used for. Elaborate on their responses, and discuss how to steam foods and why nutrients are retained by this method. (Food does not cook in water; a tightly closed lid is used.)	Transparency master: "Basket Steamer," page K-159
Demonstrate to the students how to steam broccoli. Have them notice the color and texture of the cooked product. Using the "Test for Vitamin C," perform a chemical test on the leftover large and small amounts of water used to boil the broccoli in Step 1 on page 84 and the water that remains from steaming. Determine the amount of vitamin C present in each kind of water. Discuss the results of the chemical test with the students, and have them give reasons for the findings. Compare the results. Determine which method—boiling in a large amount of water, boiling in a small amount of water, or steaming—retains the most vitamin C.	Basket steamer or saucepan with tight lid and steamer rack Broccoli Fork Cooked vegetable water Information sheet: "Test for Vitamin C," page K-160
6. Discuss other cooking methods which can help retain nutrients: broiling, barbecuing, and so forth.	
7. Have the students compare and contrast microwave cooking, stir-frying, and steaming.	
8. Divide the class in half and play a spelling bee type of activity, having each side compete against the other. When an incorrect answer is given, the student sits down. The following are questions that could be asked: • What are three ways to cook food to maximize nutrient retention. (microwave, steaming, stir-frying, or broiling) • What is one water-soluble vitamin? (B vitamins, vitamin C) • True or false? The less water used in vegetable cookery, the less vitamin and mineral loss. (true) • If you do not have a wok, what other piece of equipment could be used for stir-frying? (heavy fry pan, electric skillet) • True or false? Most Chinese dishes require more preparation time prior to cooking because the food is cut into uniform pieces before cooking. (true) • What are two ways in which ingredients can be cut up for stir-frying. (diced, sliced, shredded, or minced)	

Procedures	*Materials needed*
• True or false? Cutting up ingredients more than an hour or two in advance should be avoided since vitamins are gradually lost from the many exposed surfaces. (true)	
• True or false? Although the vegetables are cut into small pieces for stir-frying, nutrient loss is not great because no liquid is drained from the vegetables when they are served. (true)	
• Vegetables cooked by steaming are placed in a perforated container (basket steamer) and placed over ______. (boiling water)	
• True or false? Vegetables cooked by the steaming method should not be tightly covered. (false)	
• True or false? Cooking vegetables in a closed container retains more vitamins. (true)	
• To preserve food value and flavor, one should cook vegetables only until they are ______. (tender)	
• True or false? Vegetables that are overcooked lose nutrients and flavor. (true)	
• What is a microwave? (a high-frequency radio wave)	
• Electrical energy is transformed into microwave energy by a tube called a ________. (megnatron)	
• Microwaves are reflected by _____. (metal)	
• True or false? Microwaves are bounced off the metallic oven walls, floor, and ceiling in irregular patterns. (true)	
• Name two substances microwaves pass through. (paper, glass, plastic, or ceramic)	
• True or false? Microwaves are absorbed by solid food and liquids, causing the molecules of the food to agitate, producing friction, and turning into heat. (true)	
• How deep do microwaves penetrate into food? (½ to 1½ inches [1 to 4 cm], depending on the density of the food)	
• After the microwaves penetrate the food, heating occurs through _______. (transference or conduction)	
• Name two things that could be used as covers to help trap steam and hasten cooking time when a microwave oven is used. (glass covers, plastic wrap, wax paper, glass plates, saucers)	
• What is standing time? (The time during which the cooking time is allowed to finish. Heat is conducted to the center of the food.)	
• What is stir-frying? (a method of cooking food quickly in a small amount of oil over high heat)	
• Who originated stir-frying? (the Chinese)	
• True or false? The hot oil used in stir-frying not only seals in the food's flavor but also preserves its original color, crispness, and nutrients. (true)	
• What piece of equipment is usually used for stir-frying? (a wok)	
• Why is a wok advantageous for stir-frying? (The shape permits food to be tossed rapidly. Food can be pushed up the sides to keep it warm.)	

Evaluation

Have the students complete the work sheet "Food Preparation," page K-161, and discuss their answers.

Food Service Involvement

1. Have the food service manager come into the classroom and discuss food preparation methods for vegetables.

2. Take a field trip to the cafeteria to observe how the vegetables are prepared. Discuss the advantages and disadvantages of the preparation methods used.
3. Take a field trip to a Chinese restaurant to observe and taste stir-fried vegetables.

Notes

Answer Key:

"Food Preparation," page K-161

1. F
2. T
3. T
4. T
5. F
6. F
7. F
8. F
9. F
10. T

Lesson 25. Preserving Foods

An information acquisition lesson designed to help students identify three ways of preserving food at home

Objective

After completing this lesson, students should be able to list three ways of preserving food at home.

Key Facts

Foods preserved through sterilization, refrigeration, dehydration, or the use of chemicals are protected from spoilage caused by microorganisms and enzymes.

Sterilization is achieved through heating or through the use of chemicals. During the canning process, sterilization takes place through heating and hermetical sealing. Fruits and vegetables with a high-acid content (e.g., tomatoes or pickled vegetables) can be processed in a boiling water bath. Other foods must be canned using a steam pressure cooker. When canning foods, one must pay careful attention to the correct temperature and to the length of cooking time.

Metal or glass containers used in canning foods must be vacuumized before sealing to prevent the cans from bursting open during the sterilization process. Metal containers are cooled immediately in cold water after processing to prevent their contents from being overcooked. Because of breakage, glass jars should not touch a cold surface immediately after the cooking process. They should be kept at room temperature to cool.

Bacteria are not actually destroyed in frozen foods but rather remain dormant while the food is in the frozen state. The activity of enzymes—chemical substances that promote changes in food—is slowed by freezing temperatures, but most enzymes are not destroyed. Frozen foods should be thawed out in the refrigerator rather than at room temperature to prevent spoilage during thawing.

Dehydration is one of the oldest methods of preserving food. Because microorganisms need moisture to grow, reducing the moisture level retards or stops the growth of the food spoiling organisms.

Chemical preservation can be achieved with common salt, chemicals from smoke, nitrates, organic acids, and antibiotics.

Activities

Procedures	*Materials needed*
1. Show the students an apple. Ask them what could be done to make it last through the school year and have them elaborate on their answer. (The desired response is that the apple could be dried in slices, canned, or frozen.)	Apple
Show the students three different preserved apple products that were purchased in a grocery store and tell them that they can do basically the same thing to apples at home. The products could be dried apple slices or apple leather (dried), applesauce (can or jar), and frozen apple slices.	Dried apple slices or apple leather Applesauce Frozen apple slices
Ask the students to taste the dried apple slices or apple leather. Ask for comments regarding the taste and appearance and ask how these foods are prepared. Do the same for the applesauce and frozen apple slices.	
2. Distribute the information sheet "Freezing" to the students.	Handout: "Freezing," page K-162
Have them read the basic information about freezing and answer the questions on the "Freezing to Preserve" work sheet. Discuss the answers with the students and have them correct their answers.	Work sheet: "Freezing to Preserve," page K-163
Show the transparency about temperatures. Point out the freezing level on the thermometer and explain the effect of freezing on bacteria. (Show the entire thermometer but cover up the other information with a piece of paper.)	Transparency master: "Temperature," page K-164

Procedures	*Materials needed*
Show various types of freezer wraps and containers.	Freezer wraps and containers
Freeze a variety of foods, such as casseroles, fruits, vegetables, and breads. Evaluate the appearance, taste, and texture, and discuss the nutritional value of these foods.	Food items
3. Distribute the information sheet "Drying." Have the class read the basic information about drying and complete the "Drying to Preserve" work sheet. Discuss the correct answers.	Handout: "Drying," page K-165 Work sheet: "Drying to Preserve," page K-166
Again using an overhead projector to show the entire thermometer, move the paper up to show the temperature range for drying (140° F. [60° C]). Discuss bacterial growth at this temperature.	
Have the class prepare fruit leather or dried apple slices.	Handout: "Drying Fruit," pages K-167 and K-168
4. Distribute the information sheet "Canning" to the students. Have them read the basic information about canning and answer the questions on the "Canning to Preserve" work sheet. Discuss the correct answers.	Handout: "Canning," pages K-169 and K-170 Work sheet: "Canning to Preserve," page K-171
Can a variety of fruits and vegetables.	Food items and cooking utensils needed for canning
Compare and contrast the advantages and disadvantages of drying, canning, and freezing foods.	
5. Distribute the "Food Preservation Crossword Puzzle." Correct it, using the answers in the "Answer Key," page 90.	"Food Preservation Crossword Puzzle," page K-172
When you are planning a lesson on *microbiology*, you may wish to use the following activities in helping students to achieve the subject matter objective:	
a. Tell the class that there are many methods of preserving food, such as canning, drying, refrigerating, and freezing.	
b. Have the students use sterile techniques to place a dried pea, a canned pea, a refrigerated fresh pea, and a frozen pea on a sterile agar plate. Incubate the food samples two to three days and have the students record the results. Point out that canning is the only method of completely killing microbes.	Sterile agar plates Dried, canned, fresh, and frozen peas Incubator

Evaluation

Have the students complete and correct the "Food Preservation Quiz," page K-173. Discuss their answers in class.

Food Service Involvement

Ask the food service personnel to tell the class about the use of dehydrated, canned, and frozen items in the food service program. Bring samples to class for display or visit the kitchen.

Notes

Answer Key:

"Freezing to Preserve," page K-163

1. Freezing
2. High quality
3. Spoilage, bruises, decay
4. Sterilize
5. Washed
6. Vitamins
7. Blanched
8. Moisture-proof and vapor-proof
9. Aluminum, glass, plastic, or heavily waxed cardboard
10. Waxed paper, paper bags
11. Contents, date of freezing, maximum storage date, number of servings or amount
12. 0 degrees Fahrenheit (-18° C)

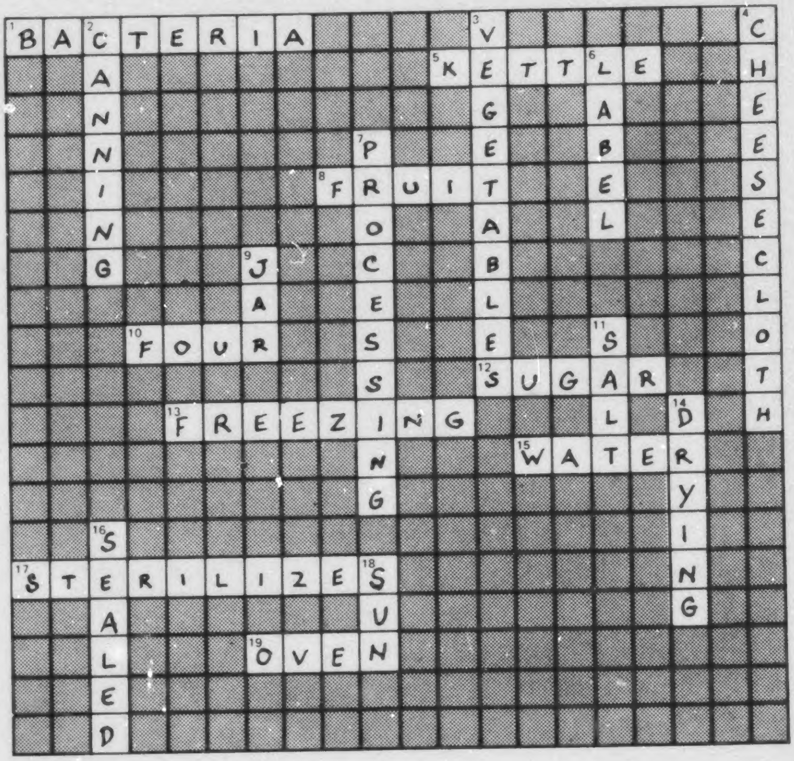
"Drying to Preserve," page K-166

1. Preserving
2. Water
3. Bacteria, yeast, molds
4. Sun drying
5. Sun
6. Three, four
7. Cheesecloth
8. Oven drying
9. 140 degrees Fahrenheit (60° C)
10. Fruits, vegetables, meats
11. Small bulk, weight

"Canning to Preserve," page K-171

1. Canning
2. Bacterial growth
3. Mature, ripe
4. Young, tender
5. Blanched
6. Sugar, salt
7. Glass, tin
8. Sealing device
9. Organisms, sterilizes
10. Boiling water bath
11. Kettle, rack, tight cover
12. Cooled
13. Sealed
14. Cool, dry place
15. Spoilage

"Food Preservation Crossword Puzzle," page K-172



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"Food Preservation Quiz," K-173

1. b
2. c
3. c
4. a
5. b
6. c

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Lesson 26. Identifying Agencies Which Enforce Food Sanitation

An information acquisition lesson designed to help students recognize one local, state, and federal governmental agency responsible for the enforcement of food sanitation and safety regulations

Objective

After completing this lesson, students should be able to name one local, state, and federal governmental agency responsible for the enforcement of food sanitation and safety regulations.

Key Facts

The following section contains information about the responsibilities of federal, state, and local agencies to ensure the enforcement of regulations concerning food sanitation and safety:

- The Food and Drug Administration (FDA) establishes standards for food products. (Standardized products are not required to have lists of any ingredients except preservatives and additives.)
- The FDA requires that all products not standardized must have lists of all ingredients, including all additives and preservatives.
- The U.S. Department of Agriculture (USDA) inspects all red meats, poultry, eggs, dairy products, and fresh fruits and vegetables for interstate (between two states) commerce.
- When meats and crops (e.g., fresh fruits and vegetables) are sold within a state, they are inspected by the respective state department of food and agriculture. All other foods (milk, dairy products, or processed foods) that are produced and sold within the state are inspected by the food and drug section of the state department of health.
- The USDA provides the grade standards for eggs, red meats, milk, and poultry.
- The local health departments are responsible for inspecting local food operations for adherence to sanitation and safety codes.

Activities

Procedures	*Materials needed*
1. Introduce information about sanitation and safety protection services provided by governmental agencies. Have the following two exhibits prepared in advance: (a) a bowl of corn or other vegetable with a stone or other contaminant on top of the corn; and (b) a bowl of pear halves with three to four human hairs on top of it. Show the samples to the students and ask the them how they would like to eat the foods shown. Encourage the students to express their views and to relate any experiences they may have had involving food contamination; e.g., people who grab food from a salad bar with their fingers. Guide the students toward the realization of the need for consumer protection of food products. (Several weeks before the unit is introduced, offer extra credit to students who wish to research the establishment of standards for foods. Sinclair Lewis's book *The Jungle* is a possible resource.	Corn Pear halves Contaminants (e.g., stone, hair)
2. Tell the students that you would like them visit a local food service (e.g., fast food restaurant, school cafeteria, or bakery) and observe the safety and sanitation principles followed. Emphasize that, in this assignment, the students are to be observers only. Before the students begin the activity, emphasize that they must	

Procedures	Materials needed
review the form and make mental notes of the points that they will be looking for. They are not to fill in the form while they are in the food service establishment. The students should complete the form after they leave the establishment while the information is still fresh in their minds.	
Show the transparency "What Does a Food Inspector Check?" Discuss the various points the students will be evaluating. Discuss any questions or changes they would like to make on the inspection checklist. Tell the students that they also will be rating the food service establishment in terms of their checklist. The grading standards are as follows: A = Superior, B = Excellent, C = Average, D = Needs Improvement, F = Failure. Distribute the "Food Service Rating Form" and explain how to use it. Give the students time to complete the assignment.	Transparency master: "What Does a Food Inspector Check?" page K-174 Work sheet: "Food Service Rating Form," pages K-175 and K-176
Discuss the findings of the students' inspections in class. Open the discussion with one of the questions from the "Food Service Rating Form" (examples: (1) Did any of you see food service personnel have direct contact with food after handling money? (2) Did food service personnel appear clean and neat?).	
3. Distribute the "Governmental Agencies Information Sheet" and have students read it to themselves. Divide the students into twos and give each pair the "Governmental Agencies" work sheet. Discuss the correct answers.	Handout: "Governmental Agencies Information Sheet," pages K-177 and K-178 Work sheet: "Governmental Agencies," page K-179
4. Distribute the "Fact-Finding Mission" work sheet. Instruct the students to complete it as a homework assignment and give them time to complete it. (*Note:* This assignment will require that each student visit a grocery store and do an investigation.) If students are unable to visit a grocery store, set up a simulation in your classroom.	Work sheet: "Fact-Finding Mission," page K-180
Set up four desk stations in the classroom:	
First station: Place an empty carton for yogurt, cottage cheese, eggs, and milk on the desk. Have the students answer questions one, two, and three.	Yogurt carton Cottage cheese carton Egg carton Milk carton
Second station: Place an empty jar for pickles, mustard, and mayonnaise on the desk. Have the students answer questions four and five.	Pickle jar Mustard jar Mayonnaise jar
Third station: Place a package of cheddar cheese and Monterey jack cheese on the desk. Have the students answer question six.	Cheddar and Monterey jack cheese packages
Fourth station: Place two grocery advertisements for red meat on the desk. Have the students answer questions seven and eight.	Two grocery advertisements for red meat
When the students have completed the assignment, review the work sheet in class. Show a transparency of the work sheet and ask the students to call out their answers. Fill in the various answers on the transparency. Discuss them.	See "Fact-Finding Mission," page 94 (in the "Answer Key").
5. Have the students write a letter to the FDA, reporting a product they believe to be mislabeled or unsanitary. Use the "How You Can Report to the FDA" fact sheet as a reference.	Fact sheet: "How You Can Report to the FDA," pages K-181 and K-182

Procedures	*Materials needed*
6. Invite a local sanitarian or local fast foods restaurant manager as the guest speaker to discuss food sanitation and safety and job responsibilities. Have the students prepare questions, in advance, to ask the speaker. As a follow-up activity, have the class write a thank-you note to the guest speaker. Specify that the note include two duties of the speaker that the students learned about. If more than one speaker gave a presentation, contrast the presentations during a discussion.	
7. Distribute one copy of the "Know the Right Role" work sheet to each student. Give the students approximately 15 minutes to complete the work sheet. Have the students exchange papers and correct them in class.	Work sheet: "Know the Right Role," page K-183
8. When you are planning a lesson on *the role of government* and *pressure groups,* you may wish to use the following activities in helping the students to achieve the subject matter objective: a. Explain the role of agencies concerned with food sanitation and safety in our governmental structure. (How were they established, how do they function, what are their functions, and how are they staffed?) b. Contact a local or state agency and ask for some examples of case studies that deal with nutrition. Give the case studies to students, working in small groups and ask them to try to solve these problems as governmental agency staff would within a specified time (e.g., 20 minutes). Present the case studies to the entire class to determine the agreement among the groups with the decisions made by agency staff. c. Assign students, working in small groups, to research a particular agency, such as local, state, federal, private, or international. (For example, students can determine how this particular department or agency functions, how it is organized, and what goals it has.) Ask student groups to report their findings to the rest of the class. d. Invite a member of the county or state health department or a lobbyist or member of a particular pressure group to class to discuss his or her job and what the agency does.	

Evaluation

Have the students complete the work sheet "Food Sanitation and Safety," page K-184, and discuss their answers in class.

Food Service Involvement

1. Have a pair of students meet with the school food service personnel to investigate the following points and to discuss their findings with the class:
    a. Use of thermometers in refrigerated and steam tables
    b. Pest control
    c. Personal hygiene (gloves, hair nets, handwashing)
    d. Policy regarding staff illnesses
    e. Storage of foods (refrigerated and dry goods)
2. Invite a person from the food services department to be a guest speaker. Possible topics include the following:
    a. Specific responsibilities relating to sanitation and safety
    b. Training of employees relating to sanitation and safety
    c. School district policy on sanitation
    d. The California Restaurant Act
    e. OSHA

Notes

Answer Key:

"Governmental Agencies" work sheet, page K-179

1. FDA, PHS
2. USDA
3. Local department of health
4. Sanitarian
5. Local department of health
6. FDA
7. Food standards were established to ensure consumers that the food product they expect to buy is the one they actually buy.
8. Nonstandardized foods must list all ingredients in descending order of the amount of their use and list all additives and preservatives.
9. The USDA inspects all red meats, poultry, eggs, dairy products, and fresh processed fruits and vegetables sold in interstate commerce.
10. The local department of health inspects all local foods units; e.g., restaurants, grocery stores, meat markets, dairies, and school food service operations.

"Fact-Finding Mission," page K-180

1. Yogurt (Cultured milk, skim milk, sugar, crushed raspberries, cornstarch, gelatin, natural flavors, natural colors, natural carmine, and annatto color)
2. FDA
3. Eggs (grade AA)
4. Mayonnaise
5. FDA
6. Yes
7. Grade choice. Prices will vary.
8. Local department of health

"Know the Right Role," page K-183
Local—C, F, G; State—A, D; Federal—B, E.

"Food Sanitation and Safety," page K-184

1. C
2. A
3. B
4. D
5. C
6. A
7. E

Lesson 27. Sharing Ideas About Food-Borne Illnesses

An open-ended discussion lesson through which students have an opportunity to share ideas, opinions, and feelings about foods that are particularly susceptible to organisms that may cause food-borne illness

Procedures	Materials needed
Discussion Sequence	
Note: If necessary, review with the class information about foods susceptible to organisms causing food-borne illness.	Review pages 45 through 47 in *Nutrition Education—Choose Well, Be Well: A Resource Manual for Secondary Teachers,* and pages 79 through 81 in this guide.
1. Inform the students that the purpose of the lesson is to share ideas, opinions, and feelings about foods that are particularly susceptible to organisms that may cause food-borne illness.	
2. Hand out copies of the story "Darlene's Dilemma" and tell the students that after they have read it, they will be able to make suggestions to help Darlene solve her problem.	Handout: "Darlene's Dilemma," page K-185
3. Present the discussion rules outlined in the "Introduction to the Curriculum."	
4. Restate the discussion question: "What Should Darlene Do?"	
5. Conduct the discussion.	

Lesson 28. Exploring Values About Food Handling

A values awareness lesson in which students explore their values about handling, preparing, and preserving food

Procedures	Materials needed
Activities: Before the Lesson	
Note: If necessary, review with the class information on food handling. Define *food handling* as the process involved in handling, preserving, and preparing food.	Review pages 41 through 47 in *Nutrition Education—Choose Well, Be Well: A Resource Manual for Secondary Teachers,"* and pages 79, 83, and 88 in this guide.
1. Give the class the following homework assignment: Find at least two incidents or situations which you consider to be improper or unsafe handling, preparing, or preserving of food in your home, in a restaurant or in a supermarket.	
2. Provide some examples for the students, such as seeing their dog licking out of their dinner plate, their little brother or sister drinking out of the milk carton, defrosted vegetables in the frozen food section of the supermarket, a mouse in a restaurant, and so forth.	
3. Instruct the students to record their observations on the "Food Handling Observation Sheet" and inform them when the assignment will be due.	Work sheet: "Food Handling Observation Sheet," page K-186

Activities

Procedures	Materials needed
1. Inform the students that the purpose of this lesson is to help them become aware of their values about food handling and preparing and preserving food. Tell the students that, to become aware of their own values about food handling, they need to observe some food-handling practices which they consider improper (or unsafe).	
2. Divide the class into groups of four to six students. Allow the students to discuss and compare within their groups their findings of improper food handling practices. (This exercise is designed to stimulate the discussion and to generate new ideas. Students will need approximately five minutes to do this activity.)	
3. Instruct each group to choose one improper practice which they will *quickly* draw in cartoon form. Stress that the idea, *not* the artwork, is the important part of this exercise. Inform the groups that they will have ten minutes to draw a cartoon on the tagboard depicting one improper or unsafe practice. Distribute one piece of tagboard and one set of felt-tip pens to each group.	Tagboard Marking pens
4. Instruct the groups to each choose a spokesperson to show the cartoon to the class and to explain the cartoon if necessary. As student spokespersons finish, ask them to display their cartoons in front of the classroom (to stimulate conversation).	
5. Tell the students that you would like them to share the *reasons* for their feelings about the situations displayed on the posters.	
6. As the students respond, list the reasons for their feelings about the situations portrayed on the chalkboard under the heading: Reasons Improper Food Handling Concerns Me	

Procedures	Materials needed

7. Inform the students that their reasons are clues to their *values* about proper food handling.
8. Write the corresponding value opposite the first few items on the board. (Do not erase the lists from the board, because the students will need them later.) Ask students to help you complete the list of values.

Reasons Improper Food Handling Concerns Me	Value
Causes illness	Good health
Can kill a person	Life
Makes food taste bad	Good tasting food

9. Ask the students to formulate value statements. Write the following sentence on the chalkboard:

   One of my values about proper food handling is that it ____
   ____.

   Show the students how to complete this sentence, using the value list on the board (e.g., promotes good health, protects life, or provides good tasting food).
10. Point out that people in the class have different values about proper food handling.
11. Focus the students' attention on their homework papers. Instruct the students to do the following:
    a. Make a list similar to the one on the board headed "Reasons Improper Food Handling Concerns Me."
    b. Change the students' reasons into values.
    c. Write a value statement for each value.
    d. Complete (a), (b), and (c) for each situation on the students' homework papers.
12. Invite the students to share their value statements with the class. Reaffirm that many people share some of the same values about food handling while others have quite different values about it.

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The individuals who helped to develop and/or field test the lessons in this curriculum are as follows:

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Carol Ference	Teacher	San Juan Unified School District
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Cathryn Golliher	Teacher	Los Angeles Unified School District
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Joan Reynolds	Teacher	Hayward Unified School District
Rosalie Robinson	Teacher	Santa Barbara High School District
Marie Schilling	Food Service Director	Anderson Union High School District
Michael Smith	Teacher	Long Beach Unified School District
Stephen Smith	Teacher	Long Beach Unified School District
Mary Springhorn	Nutrition Project Manager	Anderson Union High School District
Mary Tolan	Nutrition Project Manager	Santa Cruz City Elementary School District
Sally Tollette	Teacher	Grant Joint Union High School District
Helen Tourtilott	Food Service Director	San Mateo Union High School District
Susan Van Horne	Teacher	Elk Grove Unified School District

National School Lunch Program

Background and Philosophy

Feeding children in schools began in the United States in the 1800s as charity programs. The public school system eventually took over these charity programs and expanded them so that they no longer served only the poor children. In the 1930s, school feeding received assistance from the surplus foods distributed by the U.S. Department of Agriculture, but the school feeding program was still operating on a temporary basis.

In 1946 Congress initiated the National School Lunch Program as a measure of national security to safeguard the health and well-being of the nation's children. It is significant that the congressional testimony preceding the passage of the Act, and the Act itself, clearly indicate that its purpose is to make available low cost, nutritious school lunches to all schoolchildren.

In spite of this goal, it became increasingly evident that the National School Lunch Program was not reaching a large number of children. The Act was amended in 1962 to authorize increased reimbursement to schools drawing attendance from particularly needy areas. However, federal funds were not provided for this special assistance program until 1965, and then only in a very limited amount.

In 1966 testimony before several congressional committees indicated that there were many children who qualified for, but were not receiving, a free lunch or one at a reduced price. Almost one million of these children were among nine million who were attending schools without food service of any type. This testimony led to the passage of the Child Nutrition Act of 1966. This Act authorized funds for the establishment of breakfast programs in schools drawing attendance from areas in which poor economic conditions exist and for the purchase of equipment needed to initiate or expand school food service. The Act also extended the National School Lunch Program to preschool children. In 1977 Congress further authorized funds for nutrition education to provide instruction for students, teachers, and food service personnel. Thus, the original National School Lunch Program should more properly be called the Child Nutrition Program, since it provides for improved nutrition and, very important, nutrition education for our children and youth. It appears that Congress, the general public, and educators are becoming increasingly aware of the fact that you can't teach a hungry child.

The school food service program is increasing in scope, size, complexity, and importance. Management of the program involves every phase of school business management, nutrition, and merchandising. The person who can successfully operate a school food service program has achieved a high level of skill in many areas.

Appendix C

Nutrient Composition Table

"The Nutrient Composition Table" contains information about the nutrient content of most foods in common use in the United States. Processed and prepared foods as well as foods in the natural state are included. The information about these foods is listed for portions that are commonly used.

The nutrient content includes the amount of energy, protein, fat, and carbohydrate contained in each food. Also included are minerals and vitamins. These tables show the amounts of the following kinds of minerals each food contains: calcium, phosphorus, magnesium, sodium, potassium, zinc, copper, and iron. Amounts are shown for the following kinds of vitamins: vitamin A, thiamin, niacin, vitamin B-6, pantothenic acid, folacin, vitamin B-12, and vitamin C.[1]

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[1] From *Bogert's Nutrition and Physical Fitness* by George M. Briggs and Doris H. Calloway. Copyright © 1979 by W. B. Saunders Company. Reprinted by permission of Holt, Rinehart and Winston, CBS College Publishing, a division of CBS, Inc. This material is from Table 2, pages A-12 through A-28.

Nutrient Composition Table

							Minerals								Vitamins								
Food	*Weight* g	*Approximate Measure*	*Energy* Kcal	*Protein* g	*Fat* g	*Total Carbohydrate* g	Calcium mg	Phosphorus mg	Magnesium mg	Sodium mg	Potassium mg	Zinc mg	Copper mg	Iron mg	Total Vitamin A Activity IU	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Pantothenic Acid mg	Folacin (free) mcg	Vitamin B-12 mcg	Vitamin C mg
Almonds, chopped	15	12–15 nuts, 2 tbsp	90	3.0	8.0	3	35	75	40	1	115	0.2	0.1	0.7	0	0.04	0.1	0.5	0.02	0.07	5	0	tr
Apples, raw with skin	150	1 medium 3/lb	80	0.3	0.8	20	10	15	10	1	150	0.08	0.1	0.4	100	0.04	0.03	0.1	0.04	0.2	5	0	6
Apple juice, canned, no sugar added	125	1/2 c	60	0.1	tr	15	10	10	5	1	125	0.04	.01	0.6	u	0.01	0.02	0.1	0.04	0.1	1	0	1
Applesauce, sweetened	125	1/2 c	120	0.3	0.1	30	5	5	5	3	100	0.1	.01	0.6	50	0.03	0.01	tr	0.04	0.1	1	0	1
Apricots																							
Fresh	100	2–3 medium	50	1.0	0.2	13	15	25	10	1	280	0.04	0.1	0.5	2700	0.03	0.04	0.6	0.07	0.2	u	0	10
Canned, heavy syrup	120	4 halves, 2 tbsp juice	100	0.7	0.1	25	15	20	10	1	235	0.04	0.1	0.4	2000	0.02	0.02	0.5	0.06	0.1	u	0	5
water pack	100	4 halves, 2 tbsp juice	40	0.7	0.1	10	10	15	10	1	245	0.03	0.1	0.3	1800	0.02	0.02	0.4	0.06	0.1	u	0	4
Dried, sulfured, raw	30	4–6 medium halves	80	1.5	0.2	20	20	30	20	1	295	0.04	0.1	1.7	3300	tr	0.05	1.0	0.05	0.2	3	0	4
Apricot nectar, canned	125	1/2 c	70	0.4	0.1	18	10	15	5	tr	190	u	u	0.3	1200	0.01	0.01	0.3	0.04	0.10	u	0	4
Artichokes, French, boiled	120	1 large (300 g as purchased)	30	3.0	0.2	12	60	85	u	35	360	0.4	0.4	1.3	200	0.08	0.05	0.8	0.30	0.60	u	0	10
Asparagus,[3]																							
Fresh, green, cooked	100	1/2 c cut, 6–7 spears	20	2.0	0.2	4	20	50	15	1	185	0.3	0.1	0.6	900[3]	0.2	0.2	1.5	0.2	0.6	60	0	25
Canned, salt added[3]	100	1/2 c cut, 6–7 spears	20	2.0	0.4	3	20	50	15	235	165	0.8	0.1	1.9	800[3]	0.06	0.1	0.8	0.06	0.2	25	0	15
Avocados	125	1/2 fruit, 4 in long	190	2.0	18.0	7	10	45	55	5	680	0.5	0.5	0.7	350	0.1	0.2	2.0	0.4	1.1	40	0	15
Baby foods																							
Dinners	130	Contents 4½ oz jar																					
beef-noodle			30	3.5	1.5	9	15	35	u	150	205	u	0.1	0.6	790	0.03	0.06	0.6	0.04	0.2	u	0.3	3
beef-vegetable			110	9.5	4.5	8	15	110	u	115	145	u	0.1	1.5	1410	0.09	0.2	2.0	0.10	0.3	4	0.3	3
vegetable-beef-cereal			70	3.5	2.0	10	20	50	u	150	185	u	0.1	1.0	3580	0.04	0.05	1.0	0.06	0.2	u	0.2	1
Fruits and desserts	135	Contents 4¾ oz jar																					
banana-pineapple			110	0.5	0.1	30	30	15	u	10	100	u	0.1	0.3	40	0.01	0.01	0.1	0.06	0.2	1	0.05	3
custard pudding			130	3.0	2.5	25	80	80	u	80	120	u	0.06	0.4	130	0.03	0.2	0.1	0.02	0.3	u	0.2	1
fruit pudding			130	1.5	1.0	30	35	45	u	15	100	u	0.1	0.4	140	0.04	0.07	0.1	0.02	0.2	u	0.08	4
Bacon, broiled, drained	25	2 strips, thick	140	6.5	12.5	1	3	55	5	245	60	1.2	0.1	0.8	0	0.1	0.08	1.0	0.03	0.08	0.1	0.2	0
Bagels	60	4 in diameter	180	6.5	2.0	30	10	50	u	u	u	0.6	0.2	1.3	30	0.15	0.11	1.3	u	u	u	0	0
Bamboo shoots	100	3/4 c	25	2.5	0.3	5	13	60	u	u	530	u	u	0.5	20	0.15	0.07	0.6	u	u	u	0	4

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Nutrient Composition Table—Continued

Food	Weight g	Approximate Measure	Energy Kcal	Protein g	Fat g	Total Carbohydrate g	Minerals								Vitamins								
							Calcium mg	Phosphorus mg	Magnesium mg	Sodium mg	Potassium mg	Zinc mg	Copper mg	Iron mg	Total Vitamin A Activity IU	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Pantothenic Acid mg	Folacin (free) mcg	Vitamin B-12 mcg	Vitamin C mg
Bananas	120	1 medium	100	1.5	0.2	25	10	30	55	1	440	0.3	0.2	0.8	250	0.06	0.07	0.8	0.6	0.3	25	0	10
Beans																							
Canned, with pork and tomato sauce	130	1/2 c	160	8.0	3.5	25	70	115	35	590	270	1.0	0.2	2.3	150	0.10	0.04	0.8	0.4	0.1	10	0	3
Canned, with pork and sweet sauce	130	1/2 c	190	8.0	6.0	25	80	145	35	485	u	1.0	0.3	3.0	[illegible]	0.08	0.05	0.7	0.1	0.1	10	0	3
Lima, fresh or frozen, boiled	85	1/2 c	95	6.5	0.4	17	40	105	55	2	360	0.9	0.4	2.2	250	0.20	0.08	1.0	0.1	0.2	8	0	15
Red, canned	125	1/2 c	120	7.0	0.5	20	35	140	35	4	335	1.0	0.2	2.3	tr	0.06	0.05	0.8	0.4	0.1	10	0	0
Refried	120	1/2 c	230	8.5	12.5	25	50	165	35	340	360	1.0	0.2	2.3	tr	0.30	0.07	0.8	0.2	0.2	20	0	0
Snap, green, fresh or frozen, boiled	65	1/2 c	15	1.0	0.2	3	55	25	15	2	95	0.2	0.08	0.4	350	0.05	0.06	0.3	0.04	0.1	5	0	8
canned	65	1/2 c	15	1.0	0.2	3	55	25	15	150	60	0.2	0.08	1.0	300	0.02	0.04	0.2	0.03	tr	5	0	2
Soybeans, mature, dry, cooked	90	1/2 c (1 oz, dry wt.)	120	10.0	5.0	10	65	160	80	2	490	0.6	0.3	2.5	20	0.20	0.08	0.6	u	u	70	0	0
Bean sprouts. See Sprouts																							
Beef																							
Corned, canned	80	2 slices each 3 in x 2 in x ½ in	170	20.0	9.5	0	15	85	20	u	u	2.5	u	3.4	tr	0.02	0.20	3.0	0.08	0.5	2	1.5	0
hash, with potatoes	110	1/2 c	200	10.0	12.5	12	15	75	20	595	220	1.4	u	2.2	tr	0.01	0.10	2.5	0.08	0.6	u	0.8	0
Dried, creamed	120	1/2 c	190	10.0	12.5	9	130	170	40	880	190	1.8	u	1.0	450	0.08	0.20	0.8	0.60	0.7	u	u	1
Hamburger, broiled, lean, 21% fat	85	4/lb, raw wt	240	20.0	16.5	0	10	160	20	50	220	3.7	0.07	2.6	30	0.07	0.20	4.5	0.4	0.3	3	1.5	0
very lean, 10% fat	85	4/lb, raw wt	190	23.0	9.5	0	10	195	20	60	260	4.9	0.09	3.0	20	0.08	0.20	5.0	0.4	0.3	3	1.5	0
Roast, chuck, braised	85	3 oz	240	23.0	16.5	0	10	115	20	40	185	3.7	0.07	2.9	30	0.04	0.20	3.5	u	u	3	1.5	0
rib, U.S. choice	85	3 oz	380	17.0	33.5	0	10	160	20	40	190	3.1	0.07	2.2	70	0.05	0.10	3.0	0.3	0.3	3	1.5	0
Steak, broiled																							
round with fat	85	3 oz	220	24.5	13.0	0	10	215	25	60	270	5.0	0.09	3.0	20	0.07	0.20	5.0	0.3	0.4	3	2.2	0
sirloin with fat	85	3 oz	330	20.0	27.0	0	10	160	20	50	220	3.7	0.07	2.5	50	0.05	0.20	4.0	u	u	3	1.5	0
Beef stew, with vegetables	245	1 c	220	15.5	10.5	15	30	185	50	90	615	2.4	0.05	2.9	2400	0.15	0.15	4.7	0.3	0.2	7	1.6	15
Beer	360	12 oz bottle	150	1.0	0	14	20	110	35	25	90	0.1	0.2	tr	0	0.01	0.10	2.0	0.2	0.3	25[4]	0	0
Beet greens, boiled	75	1/2 c	15	1.0	0.2	2	70	20	80	55	240	0.5	0.1	1.4	3700	0.05	0.10	0.2	0.08	0.2	u	0	10
Beets, sliced, canned	85	1/2 c	30	1.0	0.1	8	15	15	15	200	135	0.3	0.1	0.6	20	0.01	0.03	0.1	0.04	0.1	30	0	2
Beverages. See Carbonated beverages, individual entries, and Table 3-5, Chapter 3																							
Biscuits, from mix, enriched	30	1 of 2 in diameter	90	2.0	3.0	15	20	65	5	270	30	0.3	0.09	0.6	tr	0.08	0.07	0.6	0.01	0.1	2	0	0
Blackberries, boysenberries, etc., raw	70	1/2 c	40	0.8	0.6	9	25	15	20	1	120	0.05	0.1	0.6	150	0.02	0.03	0.3	0.04	0.2	2	0	15
Blueberries, raw	70	1/2 c	45	0.5	0.4	11	10	10	4	1	60	0.05	0.08	0.8	80	0.02	0.04	0.4	0.05	0.1	2	0	10
Bokchoy. See Pakchoy.																							
Brazil nuts, raw	30	6 large nuts	180	4.0	19.0	3	55	195	65	tr	205	1.4	0.4	1.0	tr	0.30	0.03	0.5	0.05	0.1	tr	0	0
Bread																							
Boston brown, canned	45	1 slice, ½ in thick	95	2.5	0.6	20	40	70	u	115	130	u	u	0.9	30	0.05	0.03	0.5	u	u	u	0	0
Corn, from mix	56	2½ in square	180	4.0	6.0	30	135	210	u	265	60	u	u	0.8	150[5]	0.10	0.10	0.8	u	u	u	u	0

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Nutrient Composition Table—Continued

							Minerals								*Vitamins*								
Food	*Weight* g	*Approximate Measure*	*Energy* Kcal	*Protein* g	*Fat* g	*Total Carbohydrate* g	Calcium mg	Phosphorus mg	Magnesium mg	Sodium mg	Potassium mg	Zinc mg	Copper mg	Iron mg	Total Vitamin A Activity IU	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Pantothenic Acid mg	Folacin (free) mcg	Vitamin B-12 mcg	Vitamin C mg
***Bread**, continued*																							
Cracked wheat	25	1 slice	65	2.2	0.6	13	29	30	10	130	35	0.3	0.05	0.3	tr	0.03	0.02	0.3	0.02	0.2	3	0[19]	0
French, Vienna, Italian, enriched	25	1 slice	70	2.3	0.8	14	10	20	5	145	20	0.5	0.09	0.6	0	0.07	0.06	0.6	0.02	0.1	3	0	0
Fry bread, Indian, enriched	60	1 piece, medium	200	4.0	7.5	28	80	50	u	305	35	u	u	1.0	0	0.10	0.09	1.3	0.02	0.2	10	0	0
Raisin, not enriched	25	1 slice	65	1.5	0.7	13	20	20	5	90	60	0.3	0.05	0.3	tr	0.01	0.02	0.2	0.01	0.1	3	0[19]	0
Rye, American	25	1 slice	65	2.5	0.3	13	15	40	10	140	35	0.4	0.05	0.4	0	0.05	0.02	0.4	0.02	0.1	2	0	0
White, not enriched	25	1 slice	70	2.2	0.8	13	20	25	5	130	25	0.2	0.05	0.2	tr	0.02	0.02	0.3	0.01	0.1	3	0[19]	0
enriched	25	1 slice	70	2.2	0.8	13	20	25	5	130	25	0.2	0.05	0.6	tr	0.06	0.05	0.6	0.01	0.1	3	0[19]	0
Whole-wheat	25	1 slice	65	2.5	0.8	12	25	60	10	130	70	0.4	0.05	0.8	tr	0.06	0.03	0.7	0.04	0.2	9	0[19]	0
***Broccoli**, fresh or frozen, boiled*	85	1/2 c	20	2.5	0.2	4	70	50	15	8	205	0.2	0.07	0.6	1900	0.07	0.20	0.6	0.1	0.4	20	0	70
***Brussels sprouts**, fresh or frozen, boiled*	85	4 large sprouts	30	3.5	0.3	5	25	60	15	8	230	0.3	0.08	0.9	440	0.07	0.12	0.7	0.4	1.1	15	0	70
***Butter**, salted*	5	1 tsp or pat (90/lb)	35	tr	4.0	tr	1	1	tr	40	1	tr	0	tr	150	tr	tr	tr	0	0	0	tr	0
	15	1 tbsp	100	0.1	11.5	0.1	3	3	tr	120	3	tr	0	tr	450	tr	tr	tr	0	0	0	tr	0
***Cabbage**, green, headed*																							
Raw, shredded	70	1 c	17	0.9	0.1	4	35	20	10	15	165	0.3	0.08	0.3	90	0.04	0.04	0.2	0.1	0.1	20	0	35
Cooked, chopped	70	1/2 c	15	0.8	0.2	3	30	15	10	10	120	0.3	0.02	0.2	100	0.03	0.03	0.2	0.09	0.1	2	0	25
Cakes																							
Angel food	40	2 in sector of 10 in cake	105	2.5	0.1	25	40	50	10	60	25	0.1	0.02	0.1	0	tr	0.04	tr	tr	0.08	1	tr	0
Cheese cake, frozen[6]	85	1/10 of cake	225	6.5	12.5	24	80	80	30	170	90	u	0.04	0.5	200	0.05	0.1	0.3	u	u	u	u	tr
Chocolate, with chocolate icing	90	2 in sector of 8 in cake	310	4.0	11.5	55	55	95	20	240	120	1.1	0.3	0.7	150	0.03	0.07	0.3	0.07	0.4	3	0.1	0
Gingerbread	65	2¾ in square	170	2.0	4.5	30	55	65	u	190	175	u	u	1.0	tr	0.02	0.06	0.5	u	u	u	u	0
Cupcake, iced	50	1 medium	190	2.0	6.0	30	60	95	u	160	55	u	u	0.4	80	0.02	0.05	0.1	u	u	u	u	0
Pound cake	30	3½ in x 3 in x ½ in	140	1.5	9.0	14	6	25	5	35	20	0.2	0.02	0.2	80	0.01	0.03	0.1	0.01	0.09	2	u	0
Yellow with chocolate icing	70	2 in sector of 8 in cake	230	3.0	8.0	40	65	125	15	160	75	0.3	0.07	0.4	100	0.01	0.06	0.1	0.03	0.2	2	u	0
Candy																							
Caramels	30	1 oz	120	1.0	3.0	20	40	35	u	65	55	u	0.01	0.4	tr	0.01	0.05	0.1	tr	0	u	u	0
Chocolate bar																							
plain milk chocolate	30	1 oz	140	2.0	9.0	16	65	65	20	25	110	0.1	0.3	0.3	80	0.02	0.10	0.1	tr	0.03	1	u	0
with almonds	30	1 oz	150	2.5	10.0	14	65	75	u	25	125	0.1	u	0.5	70	0.02	0.10	0.2	tr	u	1	u	0
Fudge with nuts	30	1 oz	120	1.0	5.0	20	20	30	u	50	50	u	u	0.3	tr	0.01	0.03	0.1	u	u	u	tr	0
Hard	30	1 oz	110	0	0.3	30	6	2	u	10	1	u	0.03	0.5	0	0	0	0	0	0	0	0	0
Marshmallow	30	1 oz, 4 large	90	0.6	tr	25	5	2	u	10	2	0.01	0.06	0.5	0	0	tr	tr	u	u	0	0	0
Peanut brittle	30	1 oz	120	1.5	3.0	25	10	25	u	10	45	u	u	0.7	0	0.05	0.01	1.0	u	u	u	0	0
***Cantaloupe**. See Melons.*																							
***Carbonated beverages** sweet*	170	6 oz	65	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Nutrient Composition Table—Continued

Food	Weight	Approximate Measure	Energy	Protein	Fat	Total Carbohydrate	Minerals								Vitamins								
	g		Kcal	g	g	g	Calcium mg	Phosphorus mg	Magnesium mg	Sodium mg	Potassium mg	Zinc mg	Copper mg	Iron mg	Total Vitamin A Activity IU	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Pantothenic Acid mg	Folacin (free) mcg	Vitamin B-12 mcg	Vitamin C mg
Carrots																							
Raw	80	1 carrot, 7 1/2 in x 1 1/8 in	30	0.8	0.1	7	25	25	15	35	245	0.3	0.07	0.5	7900	0.04	0.04	0.4	0.1	0.2	10	0	6
Boiled	70	1/2 c diced	20	0.5	0.3	10	25	20	4	25	180	0.2	0.07	0.4	7600	0.04	0.04	0.4	0.02	0.2	2	0	4
Cashews, roasted	30	1 oz	160	5.0	13.0	8	10	105	80	60	130	1.3	0.2	1.1	30	0.1	0.07	0.5	0.1	0.4	2	0	0
Cauliflower																							
Raw	50	1/2 c whole flower buds	15	1.5	0.1	3	10	30	12	5	150	u	0.1	0.6	60	0.1	0.1	0.7	0.1	0.5	15	0	75
Boiled	60	1/2 c	15	1.5	0.2	3	15	25	8	10	130	u	0.1	0.4	40	0.06	0.05	0.4	0.1	0.5	2	0	35
Celery																							
Raw	80	2 large stalks	15	0.8	0.1	3	30	20	17	100	270	u	0.09	0.2	200[7]	0.02	0.02	0.2	0.05	0.3	5	0	8
Boiled	75	1/2 c diced	10	0.6	0.1	2	25	15	u	65	180	u	0.08	0.2	200[7]	0.02	0.02	0.2	0.05	0.3	u	0	4
Cereals, breakfast																							
Ready-to-eat																							
bran flakes, 40% enr	35	1 c	100	3.5	0.6	30	20	125	u	205	135	1.3	0.4	12.4	0[8]	0.4	0.5	4.0	0.1	0.3	6	0	0[8]
corn flakes, enriched	25	1 c	95	2.0	0.1	20	4	10	4	250	30	0.07	0.03	0.6	0[8]	0.3	0.4	3.0	0.02	0.05	3	0	0[8]
granola	50	1/2 c	215	5.7	9.6	28	30	170	60	3	180	1.0	0.4	1.6	0	0.16	0.08	1.1	0.06	0.45	20	tr	0
rice, puffed, enriched	15	1 c	60	0.9	0.1	13	3	15	u	tr	15	0.2	0.03	0.3	0	0.07	0.01	0.7	0.01	0.06	1	0	0
wheat flakes, enriched	30	1 c	100	3.0	0.5	25	10	85	30	310	80	0.7	0.3	1.1	0[8]	0.4	0.4	3.5	0.09	0.1	3	0	0[8]
wheat, shredded	50	1 c of spn-sized	180	5.0	1.0	40	20	195	65	2	175	1.4	0.4	1.8	0	0.1	0.06	2.0	0.1	0.4	5	0	0
Cooked, 1 oz. dry wt., salt added																							
cornmeal and grits,																							
unenriched	120	1/2 c	60	1.5	0.2	13	1	15	10	130	20	0.1	0.06	0.2	70[9]	0.02	0.01	0.1	0.04	0.2	2	0	0
enriched	120	1/2 c	60	1.5	0.2	13	1	15	10	130	20	0.1	0.06	0.5	70[9]	0.07	0.05	0.6	0.04	0.2	2	0	0
oatmeal	120	1/2 c	65	2.5	1.0	12	10	70	30	260	75	0.6	0.04	0.7	0	0.10	0.02	0.1	0.04	0.4	5	0	0
wheat, farina																							
light, enriched (e.g., Cream of Wheat)	120	1/2 c	50	1.5	0.1	10	5	15	4	175	10	0.07	0.04	0.4	0	0.05	0.04	0.5	0.02	0.1	5	0	0
whole-meal (e.g. Ralston)	120	1/2 c	55	2.0	0.4	12	10	65	35	260	60	0.6	0.3	0.6	0	0.08	0.02	0.8	0.1	0.2	10	0	0
Chard, Swiss, boiled	70	1/2 c	15	1.5	0.2	2	55	20	45	60	230	u	u	1.3	3800	0.03	0.08	0.3	u	0.1	u	0	0
Cheese																							
Natural																							
blue, Roquefort	30	1 oz	100	6.0	8.0	0.7	150	110	7	395	75	0.8	0.04	0.1	200	0.01	0.1	0.3	0.05	0.5	0.3	0.3	0
cheddar	30	1 oz	115	7.0	9.5	0.4	205	145	8	175	30	0.9	0.04	0.2	300	0.01	0.1	tr	0.02	0.1	0.3	0.2	0
cottage, creamed	110	1/2 c	120	14.0	5.0	3.0	70	150	6	455	95	0.4	0.02	0.2	180	0.02	0.2	0.1	0.2	0.15	15	[illegible]	0
cream	30	2 tbsp	100	2.0	10.0	0.8	25	30	2	85	35	0.2	0.01	0.3	400	tr	0.06	tr	0.01	0.1	0.2	0.1	0
Parmesan	30	1 oz	130	12.0	8.5	1.0	390	230	15	455	30	0.8	0.1	0.3	200	0.01	0.1	0.1	0.03	0.1	0.3	u	0
Swiss	30	1 oz	110	8.0	8.0	1.0	270	170	10	75	30	1.1	0.04	0.1	250	tr	0.1	tr	0.02	0.1	0.3	0.5	0
Pasturized, processed																							
American	30	1 oz	110	6.0	9.0	0.5	175	210	6	405	45	0.8	0.05	0.1	350	0.01	0.1	tr	0.02	0.1	0.9	0.2	0
cheese spread	30	1 oz	80	4.5	6.0	2	160	200	8	380	70	0.7	u	0.1	200	0.01	0.1	tr	0.03	0.2	u	0.1	0
Cheese fondue	100	2/3 c	200	15.0	18.5	10	320	295	u	540	165	u	0.04	1.2	900	0.06	0.3	0.2	u	u	u	u	0
Cherries																							
Raw, sweet	75	10 cherries	45	0.9	0.2	12	15	15	10	1	130	0.1	0.1	0.3	70	0.03	0.04	0.3	0.02	0.2	4	0	7
Red, canned																							
heavy syrup	130	1/2 c with syrup	100	1.0	0.2	25	20	15	10	2	160	u	0.06	0.4	80	0.02	0.02	0.2	0.06	0.1	tr	0	4
water pack	120	1/2 c with juice	50	1.0	0.2	13	20	15	10	2	160	u	0.06	0.4	80	0.04	0.02	0.2	u	u	tr	0	4

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Nutrient Composition Table—Continued

							Minerals								Vitamins									
Food	**Weight** g	**Approximate Measure**	**Energy** Kcal	**Protein** g	**Fat** g	**Total Carbohydrate** g	Calcium mg	Phosphorus mg	Magnesium mg	Sodium mg	Potassium mg	Zinc mg	Copper mg	Iron mg	Total Vitamin A Activity IU	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B 6 mg	Pantothenic Acid mg	Folacin (free) mcg	Vitamin B-12 mcg	Vitamin C mg
Chicken																							
Canned, flesh only	100	1/2 c	200	22.5	12.0	0	20	255	20	u	140	2	0.2	1.6	250	0.04	0.1	4.5	0.3	0.8	2	0.8	0
Creamed	120	1/2 c	210	17.5	12.0	7	85	140	u	u	u	u	u	1.1	300	0.04	0.2	4.0	u	u	u	u	tr
Fried																							
breast	95	1/2 breast	160	25.5	5.0	1	9	220	10	u	u	0.8	0.1	1.3	70	0.04	0.2	11.5	0.6	0.8	2	0.4	0
leg	55	1 medium	90	12.0	4.0	0.4	6	90	10	u	u	1.4	0.1	0.9	50	0.03	0.2	2.5	0.3	0.2	3	0.2	0
thigh	65	1 medium	120	15.0	6.0	1	7	120	10	u	u	1.6	0.1	1.2	100	0.03	0.2	3.5	0.4	0.5	3	0.3	0
Roasted, light meat, without skin	100	3½ oz	170	31.5	3.0	0	12	265	u	65	410	0.9	0.1	1.4	60	0.04	0.1	11.5	0.7	0.8	3	0.4	0
Chickpeas or *garbanzos*, cooked without salt	125	1/2 c (30 gm dry wt.)	110	6.0	1.0	18	45	106	[illegible]	10	240	2.7	u	2.1	15	0.1	0.03	0.6	0.2	0.4	7	0	0
Chili con carne, with beans, canned	255	1 c	340	19.0	15.5	30	80	320	65	1355	595	4.2	0.8	4.3	150	0.08	0.20	3.3	0.3	0.4	10	u	tr
Chili powder, chilis. See Peppers.																							
Chili relleno (stuffed pepper)	110	1 pepper	190	10.5	14.0	6	225	195	u	465	270	u	u	1.3	1600	0.08	0.2	0.8	0.1	0.7	15	1.0	55
Chocolate, bitter or baking	30	1 oz	140	3.0	15.0	8	20	110	u	1	235	0.7	0.[illegible]	1.9	20	0.01	0.07	0.4	0.01	0.06	4	0	0
Sweet, milk. *See Candy.*																							
Chow mein, canned, chicken without noodles	250	1 c	95	6.5	0.3	18	45	85	45	725	420	1.2	0.3	1.3	150	0.05	0.10	1.0	0.4	1.2	10	1.6	15
Clams, canned, with liquid	100	3½ oz, 1/2 c	50	8.0	0.7	3	55	135	115	u	140	1.2	0	4.0	u	0.01	0.1	1.0	0.08	0.3	3	20	u
Cocoa, dry	5	1 tbsp	15	0.9	1.0	3	5	35	20	tr	80	0.3	0.2	0.6	tr	0.01	0.02	0.1	tr	tr	1	0	0
Coconut, dry, unsweetened	30	1 oz	180	2.0	17.5	6	5	50	u	u	160	u	0.2	0.9	0	0.02	0.01	0.2	0.01	0.06	u	0	0
Coffee, instant, regular dry powder	2.5	1 tbsp	3	tr	tr	1	4	10	10	2	80	0.01	0.02	0.1	0	0	0.01	0.8	0.02	u	u	0	0
Collards, boiled	70	1/2 c	20	2.0	0.4	4	110	30	30	35	170	0.5	0.2	0.4	3900	0.1	0.2	0.8	0.1	0.3	25	0	35
Cookies																							
Commercial assortment	35	4 cookies	170	1.5	7.0	25	10	55	5	125	25	0.2	0.05	0.2	30	0.01	0.02	0.1	0.02	0.1	1	0	0
Fig bar	55	4 cookies	200	2.0	3.0	40	45	35	15	140	110	0.6	0.1	0.6	60	0.02	0.04	0.2	0.05	0.2	2	0	tr
Oatmeal with raisins	50	4 cookies	235	3.0	8.0	40	10	55	u	85	190	0.6	0.06	1.5	30	0.06	0.04	0.3	u	u	2	u	tr
Corn, sweet, yellow																							
Fresh or frozen, boiled	80	1/2 c	70	2.5	0.8	15	2	75	25	tr	135	0.3	0.08	0.5	350	0.09	0.08	1.0	0.2	0.3	2	0	6
Canned, whole kernel	80	1/2 c	70	2.0	0.6	16	4	40	15	195	80	0.3	0.05	0.4	300	0.02	0.04	0.8	0.2	0.2	2	0	4
Cream style	130	1/2 c	110	2.5	0.8	25	4	70	25	300	125	0.6	0.06	0.8	400	0.04	0.06	1.5	0.3	0.4	2	0	6

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Nutrient Composition Table—Continued

Food	Weight g	Approximate Measure	Energy kcal	Protein g	Fat g	Total Carbohydrate g	Minerals: Calcium mg	Phosphorus mg	Magnesium mg	Sodium mg	Potassium mg	Zinc mg	Copper mg	Iron mg	Vitamins: Total Vitamin A Activity IU	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Pantothenic Acid mg	Folacin (free) mcg	Vitamin B-12 mcg	Vitamin C mg
Corn fritter	35	1 fritter 2 in x 1½ in	130	2.5	8.0	14	20	55	u	165	45	u	u	0.6	150	0.06	0.07	0.6	u	u	u	u	tr
Corn syrup	20	1 tbsp	60	0	0	15	10	2	u	15	1	u	0.07	u	0	0	0	0	0	0	0	0	0
Cowpeas or blackeye peas																							
Immature	80	1/2 c	90	7.0	0.6	15	20	120	15	1	310	0.6	0.2	1.7	300	0.2	0.09	1.0	0.04	0.2	20	0	15
Mature, dry, cooked	125	1/2c.(1oz dry wt.)	95	6.5	0.4	17	20	120	u	10	285	2.0	0.2	1.6	10	0.2	0.05	0.5	0.07	0.3	20	0	u
Crabmeat	100	1/2 c, packed	100	18.0	2.0	0.6	45	185	u	u	90	4.5	1.0	0.8	2300	0.2	0.08	3.0	0.3	0.6	2	10	2
Crackers																							
Butter (e.g., Ritz)	15	5 round	75	1.1	3.0	11	25	40	u	180	20	u	0.03	0.1	30	tr	tr	0.1	u	u	u	0	0
Graham	15	1 cracker 5 in x 2½ in	55	1.0	1.0	10	5	20	5	95	55	0.2	0.03	0.2	0	0.01	0.03	0.2	0.01	0.08	4	0	0
Rye wafer (e.g., Rykrisp)	15	2 wafers	40	1.5	0.2	10	5	50	u	110	u	u	0.04	0.5	0	0.04	0.03	0.2	u	u	u	0	0
Saltines	10	4 each, 2 in square	50	1.0	1.5	8	2	10	3	125	15	0.05	0.02	0.1	0	tr	tr	0.1	0.01	0.05	2	0	0
Cranberry jelly, or sauce, canned	35	1/8 c	50	tr	tr	[illegible]	2	1	u	tr	10	tr	u	tr	10	tr	tr	tr	0.01	u	u	0	tr
Cream																							
Half and half	60	1/4 c or 4 tbsp	80	2.0	7.0	3	65	55	6	25	80	0.3	0.07	tr	300	0.02	0.08	0.02	0.02	0.2	1	0.2	tr
Heavy, whipping	60	1/4 c; 1/2 c whipped vol	210	1.0	22.0	2	45	35	4	20	45	0.1	0.06	tr	850	0.01	0.08	0.02	0.01	0.2	0.6	0.1	tr
Light, for coffee	60	1/4 c, 4 tbsp	120	2.0	12.0	2	60	50	5	25	75	0.2	0.06	tr	450	0.02	0.08	tr	0.02	0.2	0.6	0.1	tr
Sour	60	1/4 c, 4 tbsp	130	1.5	11.0	2	60	50	5	25	80	0.2	0.06	tr	450	0.02	0.09	0.05	0.01	0.2	7	0.1	tr
Cream substitutes																							
Coffee whitener	3	1 tsp or packet	15	0.1	0.8	2	1	12	tr	5	20	0.02	u	tr	5	0	0	0	0	0	0	0	0
Whipped topping, frozen	10	2 tbsp	30	0.1	2.5	2	1	1	tr	2	2	tr	u	tr	80	0	0	0	0	0	0	0	0
Cucumber, raw, peeled	80	1/2 small	10	0.4	0.1	2	15	15	5	4	125	0.08	0.04	0.2	tr	0.02	0.03	0.2	0.03	0.2	10	0	8
Custard, baked	130	1/2 c	150	7.0	7.5	15	150	155	u	105	195	u	0.1	0.6	400	0.06	0.2	0.2	u	u	4	u	0
Dandelion greens, boiled	50	1/2 c	20	1.0	0.3	3	75	20	20	25	120	u	u	1.0	6100	0.07	0.08	u	u	u	u	0	10
Dasheen (Japanese taro), raw	100	1 1/3 corms	100	2.0	0.2	25	30	80	u	5	515	u	u	1.0	20	0.1	0.04	1.1	u	u	u	0	4
Dates, dried	80	10, pitted	220	2.0	0.4	60	45	50	45	1	520	u	0.2	2.4	40	0.07	0.08	2.0	0.1	0.6	10	0	u
Doughnuts																							
Cake type	40	1 average	160	2.0	8.0	20	15	80	5	210	40	0.2	0.04	0.6	30	0.07	0.07	0.5	0.02	0.2	3	0	0
Yeast, raised	40	1 average	180	2.5	11.0	16	15	30	5	100	35	0.3	0.04	0.6	30	0.07	0.07	0.6	0.02	0.2	4	0	0
Eggnog	250	1 c	340	9.5	19.0	34	330	275	45	140	420	1.1	u	0.5	900	0.08	0.5	0.3	0.1	1.1	2	1.1	3
Eggs, chicken																							
Whole, raw or hard cooked	50	1 large	80	6.0	5.5	0.6	30	90	6	60	65	0.7	0.05	1.0	300	0.04	0.15	tr	0.06	0.9	25	0.6	0
white	33	1 white	15	3.5	tr	0.4	4	4	3	50	45	tr	0.01	tr	0	tr	0.09	tr	tr	0.07	1	0.02	0
yolk	17	1 yolk	65	3.0	5.0	tr	25	85	3	10	15	0.6	0.05	0.9	300	0.04	0.07	tr	0.05	0.9	25	0.6	0
Scrambled	140	2 eggs	190	12.0	14.0	30	95	195	15	310	170	1.4	0.07	1.9	600	0.07	0.30	0.1	0.1	1.8	50	1.3	tr
Eggplant, boiled	100	1/2 c diced	20	1.0	0.2	4	10	20	15	1	150	u	0.1	0.6	10	0.05	0.04	0.5	0.08	0.2	2	0	3

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Nutrient Composition Table—Continued

							Minerals								Vitamins								
Food	***Weight*** g	***Approximate Measure***	***Energy*** Kcal	***Protein*** g	***Fat*** g	***Total Carbohydrate*** g	Calcium mg	Phosphorus mg	Magnesium mg	Sodium mg	Potassium mg	Zinc mg	Copper mg	Iron mg	Total Vitamin A Activity IU	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Pantothenic Acid mg	Folacin (free) mcg	Vitamin B-12 mcg	Vitamin C mg
Enchiladas, beef																							
Frozen, commercial[10]	200	7 oz portion	240	15.0	8.5	25	20	190	u	725	155	u	u	2.5	600	0.1	0.2	3.0	u	u	u	u	u
Home recipe	190	2 enchiladas	365	32.0	16.7	22	450	480	u	510	585	u	u	5	6000	0.1	0.4	6.0	0.8	0.7	10	2	10
Fats, shortening, solid	100	1/2 c	880	0	100.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
or oil	12	1 tbsp	110	0	12.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Figs, fresh	100	2 medium	80	1.0	0.4	20	35	20	20	2	195	u	0.07	0.6	80	0.06	0.06	0.4	0.1	0.3	u	0	2
Dried	30	2 small	80	1.5	0.4	20	40	25	20	u	190	u	0.08	0.6	20	0.03	0.03	0.2	0.05	0.1	1	0	0
Fish																							
Cod, steak, sautéed	110	4 oz	180	30.0	6.0	0	30	285	30	115[11]	420	0.9	0.2	1.0	200	0.08	0.1	3.0	0.3	0.3	10	0.9	0
Fish sticks, breaded	110	4 sticks	200	19.0	10.0	7	10	190	20	u	u	0.3	0.2	0.4	0	0.04	0.08	2.0	0.06	0.3	10	1.1	0
Haddock, fried	110	4 oz	180	22.0	7.0	6	45	270	30	195[11]	385	1.1	0.2	1.3	u	0.04	0.08	3.5	0.2	0.1	5	1.4	2
Mackerel, sautéed	105	3 average	250	23.0	17.0	0	5	295	30	u	u	1.0	0.2	1.3	550	0.2	0.3	8.0	0.7	0.9	5	9.4	0
Salmon,																							
steak, broiled	145	1 average 6 in x 2 in	230	35.0	9.0	0	u	530	60	150[11]	565	2.4	1.2	1.5	200	0.2	0.08	12.5	1.0	1.9	6	5.8	0
canned, pink	110	1/2 c	160	23.0	6.0	0	215	315	30	425	395	1.0	0.3	0.9	80	0.04	0.2	9.0	0.3	0.6	10	7.6	0
red	110	1/2 c	190	22.0	10.0	0	285	380	30	575	380	1.0	0.3	1.3	250	0.04	0.2	8.0	0.3	0.6	10	7.6	0
Sardines																							
canned in oil	85	3 oz drained	170	20.5	9.0	0	370	425	35	700	500	2.4	0.03	2.4	200	0.03	0.2	4.5	0.2	0.7	10	8.5	0
Sole or flounder, fillet, baked	100	3 oz	200	30.0	8.0	0	25	345	30	235[11]	585	1.0	0.07	1.4	u	0.07	0.08	2.5	0.2	0.8	10	1.2	2
Swordfish, broiled	100	3 oz	170	26.5	6.0	0	25	260	u	u	u	u	u	1.3	2000	0.04	0.05	10.5	u	0.2	u	1.0	0
Tuna, raw	100	1/2 c	135	27.5	3.0	0	5	175	30	35[11]	180	0.5	0.5	1.3	50	0.02	0.05	6.6	0.9	0.5	3	3.0	7
canned in oil	100	1/2 c	200	28.0	8.0	0	10	230	25	u	u	1.0	0.1	1.9	80	0.05	0.1	12.0	0.4	0.3	8	2.2	0
in water	100	1/2 c	130	28.0	0.8	0	15	190	25	865	275	u	u	1.6	80	0.05	0.1	13.0	0.4	0.3	8	2.2	0
Flour, wheat																							
White, all purpose																							
unenriched	115	1 c	420	12.0	1.0	90	20	100	30	2	110	0.8	0.2	0.9	0	0.07	0.06	1.0	0.07	0.5	20	0	0
enriched	115	1 c	420	12.0	1.0	90	20	100	30	2	110	0.8	0.2	3.3	0	0.5	0.3	4.0	0.07	0.5	20	0	0
Whole-grain	120	1 c	400	16.0	2.5	85	50	445	135	4	445	2.9	0.6	4.0	0	0.7	0.1	5.0	0.4	1.3	35	0	0
French toast, frozen[10]	65	1 slice	130	5.0	4.3	18	50	85	u	305	80	u	u	1.3	250	0.1	0.1	0.7	u	u	u	u	0
Frozen dinners																							
Chicken, fried, with potatoes, mixed vegetables	310	11 oz dinner	570	28.0	29.0	48	70	350	60	1075	350	3.0	0.4	3.2	1800	0.2	0.6	16.0	0.9	1.6	20	0.7	10
Meat loaf with tomato sauce, potatoes, peas	310	11 oz dinner	410	25.0	21.0	30	60	365	60	1225	360	3.5	0.5	4.0	1300	0.3	0.4	5.5	0.7	0.9	20	1.1	10
Turkey with gravy, potatoes, peas	310	11 oz dinner	340	25.0	9.0	40	80	260	65	1200	530	3.0	0.4	3.3	400	0.2	0.3	7.0	0.8	1.8	30	0.6	10
Fruit cocktail	130	1/2 c	95	0.5	0.2	25	10	15	40	5	205	u	0.04	0.5	200	0.02	0.02	0.5	0.04	u	u	0	2
Gelatin, dry	8	1 tbsp or packet	30	7.0	0	0	u	u	2	1	u	u	0.1	u	0	0	0	0	0	0	0	0	0
Gelatin dessert, plain	120	1/2 c	70	2.0	0	17	u	u	2	u	u	0.02	0.03	u	0	0	0	0	0	0	0	0	0

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Nutrient Composition Table—Continued

							Minerals								Vitamins								
Food	Weight g	Approximate Measure	Energy Kcal	Protein g	Fat g	Total Carbohydrate g	Calcium mg	Phosphorus mg	Magnesium mg	Sodium mg	Potassium mg	Zinc mg	Copper mg	Iron mg	Total Vitamin A Activity IU	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Pantothenic Acid mg	Folacin (free) mcg	Vitamin B-12 mcg	Vitamin C mg
Grapefruit, raw	100	1/2 medium	40	0.5	0.1	10	15	15	12	1	130	0.1	0.04	0.4	80	0.04	0.02	0.2	0.03	0.3	8	0	35
Grapefruit juice, canned																							
Unsweetened	180	3/4 c	75	0.9	0.2	18	15	25	22	2	300	u	0.02	0.7	20	0.06	0.04	0.4	0.02	0.2	15	0	65
Sweetened	180	3/4 c	100	0.9	0.2	25	15	25	20	2	300	u	0.02	0.7	20	0.06	0.04	0.4	u	u	15	0	80
Grapes, raw																							
Slip-skin	100	20 grapes	45	0.8	0.8	10	10	10	10	2	105	0.17	0.1	0.2	80	0.02	0.02	0.2	0.08	0.08	4	0	2
Adherent skin	100	20 grapes	70	0.6	0.4	17	10	20	6	4	175	0.3	0.1	0.4	100	0.06	0.04	0.4	0.08	0.08	4	0	4
Grape juice	190	3/4 c	120	0.4	tr	30	20	20	25	4	220	u	0.03	0.6	u	0.08	0.04	0.4	0.04	0.08	4	0	tr
Guacamole	120	1/2 c	140	2.1	12.8	7	15	40	u	165	565	u	0.3	0.7	550	0.10	0.2	1.6	0.4	0.9	30	0	35
Ham, baked	85	3 oz	250	18.0	19.0	0	10	145	15	635	200	3.4	0.3	2.2	0	0.4	0.2	3.0	0.3	0.3	1	0.4	0
Hominy grits. See Cereal, cooked.																							
Honey, strained	20	1 tbsp	65	0.1	0	17	1	1	1	1	10	0.02	0.03	0.1	0	tr	0.01	0.1	tr	0.04	0	0	tr
Ice cream, vanilla																							
Plain, 10% fat	65	1/2 c	135	2.5	7.0	15	90	70	10	60	130	0.7	0.02	0.05	300	0.02	0.2	0.05	0.03	0.3	1	0.3	0
Rich, 16% fat	75	1/2 c	175	2.0	12.0	16	75	60	8	50	110	0.6	0.02	0.05	450	0.02	0.15	0.05	0.03	0.3	1	0.3	0
Ice milk, vanilla	65	1/2 c	90	2.5	3.0	15	90	65	10	50	130	0.3	u	0.09	100	0.04	0.2	0.05	0.04	0.3	1	0.4	0
Ices, water, lime	95	1/2 c	120	0.4	tr	30	tr	tr	u	tr	3	u	u	tr	0	tr	tr	tr	0	0	0	0	0
Jams and *jellies*	20	1 tbsp	55	0.1	tr	14	4	2	1	2	20	0.1	0.02	0.2	tr	tr	0.01	tr	0.01	0.02	1	0	tr
Kale, boiled without stems	55	1/2 c	20	2.5	0.4	3	105	30	18	25	120	u	u	0.9	4600	0.06	0.1	0.9	0.2	0.6	25	0	50
Kidney, braised	100	3 1/2 oz	250	33.0	12.0	0.8	20	240	20	250	320	2.4	0.1	13.0	1100	0.5	4.8	10.5	0.4	3.8	60	30	u
Kohlrabi, boiled	80	1/2 c, diced	20	1.5	0.1	4	25	35	30	5	215	u	u	0.2	15	0.05	0.02	0.2	0.1	0.5	u	0	35
Kumquat, raw	20	1 medium	10	0.2	tr	3	10	4	u	1	45	u	u	0.1	100	0.01	0.02	u	u	u	u	0	7
Lamb, choice grade																							
Chop, loin, broiled																							
lean and fat	95	1 average	340	21.0	28.0	0	10	165	15	50	235	u	0.1	1.2	u	0.1	0.2	5.0	0.3	0.5	1	2.0	0
lean only	65	1 average	120	18.0	5.0	0	10	140	15	45	206	3.0	0.1	1.3	u	0.1	0.2	4.0	0.2	0.4	1	1.4	0
Leg, roasted																							
lean only	85	3 oz	160	24.0	6.0	0	10	200	15	60	275	3.6	0.05	1.9	u	0.1	0.3	5.5	0.2	0.5	1	1.8	0
Shoulder, roasted																							
lean and fat	85	3 oz	280	18.5	23.0	0	10	145	15	45	206	u	0.1	1.0	u	0.1	0.2	4.0	0.2	0.5	1	1.8	0
Lard. See Fats.																							
Lasagna, frozen[8]	225	8 oz serving	380	27.0	12.4	43	310	470	55	1100	740	1.4	u	5.6	1300	0.4	0.4	4.5	u	u	u	u	15
Lemon juice, fresh	15	1 tbsp	5	0.1	tr	1	1	2	1	tr	20	tr	0.01	tr	tr	tr	tr	tr	0.01	0.02	u	0	7
Lemonade, from frozen concentrate	250	1 c	110	0.1	tr	30	2	3	2	1	40	0.02	0.02	0.1	10	0.01	0.02	0.2	0.01	0.03	5	0	15
Lentils, dried, cooked	100	1/2 c	110	8.0	tr	19	25	120	20	u	250	1.0	0.3	2.1	20	0.07	0.06	0.6	u	u	6	0	0

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Nutrient Composition Table—Continued

							Minerals								Vitamins								
Food	Weight g	Approximate Measure	Energy Kcal	Protein g	Fat g	Total Carbohydrate g	Calcium mg	Phosphorus mg	Magnesium mg	Sodium mg	Potassium mg	Zinc mg	Copper mg	Iron mg	Total Vitamin A Activity IU	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Pantothanic Acid mg	Folacin (free) mcg	Vitamin B-12 mcg	Vitamin C mg
Lettuce, raw																							
Head, solid (iceberg type)	90	1/6 head	10	0.8	0.1	3	20	20	10	10	160	0.4	0.08	0.5	300	0.05	0.05	0.3	0.05	0.2	30	0	5
Loose leaf, romaine, cos	55	1 c, chopped	10	0.7	0.2	2	35	15	10	5	145	0.2	0.05	0.8	1000	0.03	0.04	0.2	0.03	0.1	30	0	10
Liver																							
Beef, fried	85	3 oz	200	22.5	9.0	4	10	405	15	155	325	4.3	2.5	7.5	45,400	0.2	3.6	14.0	0.7	6.5	70	68.0	25
Calf, fried	85	3 oz	220	25.0	11.2	3	10	455	20	100	385	5.2	6.5	12.1	27,800	0.2	3.5	14.0	0.6	6.5	70	51.0	30
Chicken, simmered	70	1/2 c, chopped	120	18.5	3.0	2	10	110	u	40	105	2.4	0.2	6.0	8600	0.1	1.9	8.0	0.5	4.2	u	17.5	10
Lobster, northern, cooked	95	2/3 c meat	90	18.0	1.5	0.3	65	185	20	205	175	2.1	1.6	0.8	u	0.1	0.07	u	u	1.4	8	0.5	u
Lychee nuts, raw	150	10 nuts	60	0.8	0.3	15	5	40	u	3	155	u	u	0.4	0	u	0.05	u	u	u	u	0	40
Macaroni and other pastas, cooked																							
Unenriched	130	1 c	190	6.5	0.7	40	15	85	25	1[11]	105	0.6	0.03	0.7	0	[illegible]	0.03	0.5	0.03	0.2	5	0	0
Enriched	130	1 c	190	6.5	0.7	40	15	85	25	1[11]	105	0.6	0.03	1.4	0	0.2	0.1	2.0	0.03	0.2	5	0	0
Macaroni with cheese, casserole, baked	200	1 c	430	17.0	22.0	40	380	320	50	1085	240	1.3	0.08	1.8	850	0.2	0.4	2.0	0.09	0.4	10	0.8	0
Mangos, raw	165	1c, diced	110	1.0	0.7	30	15	20	30	10	310	0.8	0.2	0.7	7900	0.08	0.08	2.0	u	0.3	u	0	60
Margarine	5	1 tsp, 1 pat (90/lb)	35	tr	4	tr	1	1	tr	50	1	0.01	tr	0	160	0	0	0	0	0	0	0	0
Melons																							
Cantaloupe	160	1/2 melon or 1 c, cubed	50	1.0	0.2	12	20	25	20	20	400	0.1	0.06	0.6	5400	0.06	0.05	1.0	0.1	0.4	50	0	55
Honeydew	170	1/8 melon or 1 c, cubed	55	1.4	0.5	13	25	25	u	20	425	0.1	0.06	0.7	70	0.07	0.05	1.0	u	u	u	0	40
Watermelon	425	1/16 melon (2lb with rind)	110	2.0	0.9	25	30	45	35	5	425	u	0.3	2.1	2500	0.1	0.1	0.9	0.3	1.2	8	0	30
Milk, cow																							
Whole, fluid	245	1 c	155	8.0	8.5	11	290	225	30	120	370	1.0	0.08	0.1	350	0.09	0.4	0.2	0.1	0.8	10[14]	0.9	2
2%, low-fat	245	1 c	140	10.0	5.0	14	350	275	40	145	450	1.1	0.08	0.1	200[13]	0.1	0.5	0.2	0.1	0.9	15[14]	1.0	2
Skim, nonfat, or buttermilk	245	1 c	90	8.5	0.4	12	300	245	3	125[13]	400	1.0	0.08	0.1	10[13]	0.09	0.4	0.2	0.1	0.8	15[14]	1.0	2
Chocolate, low-fat	250	1 c	180	8.0	5.0	26	285	255	30	150	420	1.0	u	0.6	200[13]	0.1	0.4	0.3	0.1	0.7	10[14]	0.8	2
Dried, instant																							
whole	30	1/4 c	160	8.5	8.5	12	290	250	25	120	425	1.0	0.06	0.1	300	0.09	0.4	0.2	0.09	0.7	10[14]	1.0	2
nonfat	35	1/4 c	125	12.0	0.2	13	445	345	40	190	600	1.5	0.1	0.1	10	0.09	0.5	0.3	0.1	1.1	15[14]	1.4	2
Evaporated	250	1 c	340	17.5	20.0	25	660	510	60	265	765	1.9	0.2	0.4	600	0.1	0.8	0.5	0.1	1.6	20[14]	0.4	3
Condensed, sweetened	40	1 fl oz	120	3.0	3.5	20	105	95	10	50	140	0.4	0.08	0.1	100	0.03	0.2	0.1	0.02	0.3	4[14]	0.2	tr
Milk, human, U.S.	30	1 fl oz	21	0.3	1.3	2.1	10	4	1	5	16	0.05	0.01	0.01	70	0.004	0.01	0.1	0.003	0.07	2[14]	0.02	2
Milkshakes, commercial	270	10 fl oz	320	11.0	7.0	50	385	340	30	300	600	0.5	0.04	0.3	300	0.08	0.5	0.4	0.1	1.0	15[14]	0.6	tr

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Nutrient Composition Table—Continued

Food	Weight	Approximate Measure	Energy	Protein	Fat	Total Carbohydrate	Minerals								Vitamins								
	g		Kcal	g	g	g	Calcium mg	Phosphorus mg	Magnesium mg	Sodium mg	Potassium mg	Zinc mg	Copper mg	Iron mg	Total Vitamin A Activity IU	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Pantothenic Acid mg	Folacin (free) mcg	Vitamin B-12 mcg	Vitamin C mg
Molasses																							
Light	20	1 tbsp	50	0	0	13	35	10	9	3	185	u	u	0.9	0	0.01	0.01	tr	u	u	u	0	0
Medium	20	1 tbsp	50	0	0	12	60	15	16	5	215	0.9	0.3	1.2	0	u	0.02	0.2	0.04	0.07	2	0	0
Blackstrap	20	1 tbsp	45	tr	0	11	135	15	52	20	585	u	u	3.2	0	0.02	0.04	0.4	u	u	u	0	0
Muffins																							
Bran	40	1 muffin	100	3.0	4.0	15	55	160	u	180	170	u	u	1.5	100	0.06	0.1	1.5	u	u	u	u	0
Cornmeal	40	1 muffin	130	3.0	4.0	19	40	70	20	190	55	u	u	0.7	100[5]	0.08	0.09	0.6	u	u	u	u	0
Plain or blueberry	40	1 muffin	120	3.0	4.0	17	40	60	10	175	50	0.5	0.09	0.6	50	0.07	0.09	0.6	0.02	0.2	3	0.1	0
Mushrooms, raw	35	1/2 c, sliced	10	1.0	0.1	2	2	40	5	5	145	0.1	0.04	0.3	tr	0.04	0.2	1.5	0.04	0.8	7	0	1
Mustard greens, boiled	70	1/2 c	15	1.5	0.3	3	95	20	10	10	155	0.2	0.06	1.2	4100	0.06	0.1	0.4	0.09	0.1	u	0	35
Mustard, prepared, yellow	5	1 tsp	4	0.2	0.2	0.3	4	4	2	65	5	0.03	0.02	0.1	0	u	u	u	u	u	u	0	u
Noodles, egg, cooked,																							
Unenriched	105	2/3 c	130	4.5	1.5	25	10	65	25	2	45	0.6	0.02	0.6	70	0.03	0.02	0.4	0.02	0.2	2	tr	0
Enriched	105	2/3 c	130	4.5	1.5	25	10	65	25	2	45	0.6	0.02	0.9	70	0.10	0.09	1.3	0.02	0.2	2	tr	0
Oils. See *Fats*.																							
Okra, boiled	105	10 pods	30	2.0	0.3	6	100	45	40	2	185	u	0.1	0.5	500	0.1	0.2	1.0	0.08	0.2	10	0	20
Olives																							
Green	25	5 large	20	0.2	2.5	0.2	10	4	5	465	10	0.02	0.09	0.3	60	u	u	u	0.01	0	3	0	0
Ripe	25	5 large	35	0.2	4.0	0.6	20	4	u	150	5	0.07	0.09	0.4	20	tr	tr	u	tr	tr	u	0	0
Onions																							
Green, raw, bulb and top	25	1/4 c, chopped or 3 onions	10	0.4	tr	2	15	10	3	1	60	0.07	0.01	0.3	500	0.01	0.01	0.1	u	0.4	10	0	8
Mature, dry	85	1/2 c, chopped	30	1.5	0.1	7	25	30	10	10	135	0.3	0.1	0.4	35*	0.02	0.04	0.2	0.1	0.1	8	0	8
raw	10	1 tbsp, 1/8 onion	4	0.2	tr	0.9	3	4	1	1	15	0.03	0.01	0.1	tr	tr	tr	tr	0.01	0.01	1	0	1
boiled	105	1/2 c, sliced	30	1.0	0.1	7	25	30	10	10	115	0.6	0.08	0.4	40*	0.03	0.03	0.2	0.1	0.1	10	0	8
Oranges, raw	140	1 medium	80	1.8	0.1	18	60	30	30	1	270	0.3	0.09	0.6	280	0.14	0.06	0.6	0.08	0.4	45	0	85
Orange juice, fresh or frozen	185	3/4 c	85	1.5	0.4	19	20	30	20	2	370	0.04	0.09	0.4	400	0.2	0.05	0.8	0.07	0.4	65	0	95
Oysters, raw																							
Eastern	120	6 oysters	80	10.0	2.0	4	115	170	40	90	145	90.0	4.0	6.6	350	0.2	0.2	3.0	0.6	0.3	u	21.6	u
Pacific	120	6 oysters	110	12.5	2.5	8	100	185	30	u	u	10.8	4.0	8.6	u	0.1	u	1.6	u	u	u	u	35
Pakchoy, raw	100	2/3 c	15	1.0	0.1	3	165	45	u	25	305	u	u	0.8	3000	0.05	0.1	0.8	u	u	u	0	25
Pancakes, plain	110	4, ea. 4 in diam.	245	7.5	10.0	35	230	280	15	610	170	0.9	0.06	1.2	300	0.2	0.2	0.8	0.4	0.8	10	u	0
Papaya, raw	225	1/2 fruit or 1 c, cubed	60	0.9	0.2	15	30	25	u	4	355	u	0.02	0.4	2700	0.06	0.06	0.4	u	0.5	u	0	85
Parsley, raw	5	1 tbsp, chopped	2	0.1	tr	0.3	5	2	2	2	25	u	0.02	0.2	300	tr	0.01	tr	0.01	0.02	2	0	6
Peaches, without skin																							
Raw, yellow	115	1 medium	40	0.6	0.1	10	10	20	12	1	200	0.2	0.06	0.5	1300	0.02	0.05	1.0	0.03	0.2	2	0	7
Canned, heavy syrup	150	2 halves and 3 tbsp juice	120	0.6	0.2	30	5	20	9	4	200	0.1	0.1	0.4	650	0.02	0.04	1.0	0.03	0.08	u	0	4
water pack	155	2 halves and 3 tbsp juice	50	0.6	0.2	12	5	20	9	4	210	u	0.08	0.4	700	0.02	0.04	1.0	u	u	u	0	4
Dried, sulfured, uncooked	65	5 halves	170	2.0	0.4	45	30	75	30	10	620	u	u	3.9	2500	tr	0.1	3.5	0.06	u	u	0	10

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Nutrient Composition Table—Continued

							Minerals								Vitamins								
Food	Weight g	Approximate Measure	Energy Kcal	Protein g	Fat g	Total Carbohydrate g	Calcium mg	Phosphorus mg	Magnesium mg	Sodium mg	Potassium mg	Zinc mg	Copper mg	Iron mg	Total Vitamin A Activity IU	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Pantothenic Acid mg	Folacin (free) mcg	Vitamin B-12 mcg	Vitamin C mg
Peanuts, roasted, salted	30	1oz, 30 nuts	66	7.5	14.0	5	20	115	50	120	190	0.9	0.1	0.6	0	0.09	0.04	4.9	0.1	0.6	8	0	0
Peanut butter	15	1 tbsp	95	4.0	8.0	3	10	60	25	95	100	0.4	0.08	0.3	0	0.02	0.02	2.4	0.06	0.3	3	0	0
Pears																							
Raw, with skin	180	1, 3½ in x 2½ in	100	1.0	0.7	25	15	20	15	3	215	u	0.3	0.5	30	0.03	0.07	0.2	0.03	0.1	9	0	7
Canned, syrup	150	2 halves and 3 tbsp juice	115	0.4	0.4	30	10	10	7	2	130	u	0.06	0.4	tr	0.02	0.04	0.2	0.02	0.3	9	0	2
water pack	155	2 halves,and 3 tbsp juice	90	0.4	0.4	13	10	10	7	2	135	u	0.08	0.4	tr	0.02	0.04	0.2	u	u	u	0	2
Peas																							
Green, frozen, boiled	80	1/2 c	55	4.0	0.2	9	15	70	15	90	110	0.6	0.2	1.5	500	0.2	0.1	2.2	0.1	0.3	14	0	15
Canned, drained	85	1/2 c	75	4.0	0.4	14	20	65	10	200	80	0.7	0.1	1.6	500	0.08	0.05	0.7	0.04	0.1	5	0	7
Split, dry, cooked	100	1/2 c (1 oz, dry wt.)	115	8.0	0.3	20	10	90	8	15[11]	295	1.1	0.07	1.7	40	0.2	0.09	0.9	0.04	0.6	20	0	0
Peas and carrots, frozen, boiled	80	1/2 c	40	2.5	0.2	8	20	45	15	65	125	u	u	0.9	7400	0.2	0.05	1.0	0.08	0.2	u	0	8
Pecans	30	1 oz, 20 halves	200	2.5	20.0	4	20	80	40	tr	170	u	0.3	0.7	40	0.2	0.04	0.3	0.05	0.5	4	0	1
Peppers, hot (chili)																							
Green, canned sauce	15	1 tbsp	3	0.1	tr	1	1	2	u	u	u	u	u	0.1	100	tr	tr	0.1	u	u	u	0	10
Red, dry, chili powder	3	1 tsp	8	0.3	0.4	1	7	8	4	25	50	0.07	u	0.4	900	0.01	0.02	0.2	u	u	u	0	2
Peppers, sweet																							
Green, raw	75	1/2 c, chopped	15	0.9	0.1	4	5	15	15	10	155	0.2	0.07	0.5	300	0.06	0.06	0.4	0.2	0.2	5	0	95
Red, raw	90	1 medium	25	1.0	0.2	5	10	20	u	u	u	u	u	0.4	3300	0.06	0.06	0.4	u	0.2	20	0	150
Pickles, cucumber																							
Dill	135	1 large	15	0.9	0.3	3	35	30	1	1930	270	0.4	0.03	1.4	150	tr	0.03	tr	0.01	0.3	4	0	8
Sweet	35	1 medium	50	0.2	0.1	13	4	5	tr	u	u	0.05	0.07	0.4	30	tr	0.01	tr	tr	0.07	1	0	2
Relish, sweet	15	1 tbsp	20	0.1	0.1	5	3	2	u	105	u	0.01	0.05	0.1	u	0	0	0	u	u	0	0	tr
Pies																							
Apple, berry, rhubarb	160	1/6 of 9 in pie	400	3.5	17.5	60	15	35	5	475	125	0.1	0.1	0.5	50	0.03	0.03	0.6	0.06	0.2	3	0	2
Cherry, peach	160	1/6 of 9 in pie	410	4.0	18.0	60	20	40	u	480	165	0.06	0.1	0.5	700	0.03	0.03	0.8	u	u	u	0	tr
Cream, pudding type with meringue	150	1/6 of 9 in pie	380	7.5	18.0	50	105	150	u	380	210	u	u	1.1	300	0.05	0.20	0.3	u	1.4	u	u	tr
Custard	150	1/6 of 9 in pie	330	9.5	17.0	35	145	170	u	u	u	u	u	0.9	350	0.08	0.30	0.5	u	u	u	u	0
Lemon meringue	140	1/6 of 9 in pie	360	5.0	14.5	55	20	70	u	395	70	u	u	0.7	250	0.04	0.10	0.3	u	u	3	u	4
Mince	160	1/6 of 9 in pie	430	4.0	18.0	65	45	60	u	710	280	u	0.1	1.6	tr	0.10	0.06	0.6	u	u	u	u	2
Pecan	140	1/8 of 9 in pie	580	7.0	31.5	70	65	140	u	305	170	u	u	3.9	200	0.20	0.10	0.4	u	u	u	u	tr
Pumpkin	150	1/6 of 9 in pie	320	6.0	17.0	35	80	105	10	325	245	0.6	0.08	0.8	3800	0.05	0.20	0.8	0.06	0.8	5	u	tr
Sweet potato	150	1/6 of 9 in pie	325	7.0	17.0	36	105	130	u	330	250	u	u	0.8	3600	0.08	0.20	0.5	u	u	u	u	6
Pineapple, diced or crushed																							
Raw	155	1 c	80	0.6	0.3	20	25	10	20	2	225	0.3	0.1	0.8	100	0.1	0.05	0.3	0.1	0.2	15	0	25
Canned, in heavy syrup	130	1/2 c solids and liquid	95	0.4	0.2	25	15	6	10	2	120	0.3	0.2	0.4	60	0.1	0.02	0.2	0.1	0.1	3	0	9

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Nutrient Composition Table—Continued

Food	Weight	Approximate Measure	Energy	Protein	Fat	Total Carbohydrate	Minerals								Vitamins								
	g		Kcal	g	g	g	Calcium mg	Phosphorus mg	Magnesium mg	Sodium mg	Potassium mg	Zinc mg	Copper mg	Iron mg	Total Vitamin A Activity IU	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Pantothenic Acid mg	Folacin (free) mcg	Vitamin B-12 mcg	Vitamin C mg
Pineapple, continued																							
in juice	125	1/2 c solids and liquid	70	0.4	0.2	17	15	8	15	1	160	0.2	0.1	0.6	80	0.1	0.04	0.2	0.1	0.2	tr	0	15
water pack	125	1/2 c solids and liquid	50	0.4	0.1	13	15	5	tr	1	120	tr	tr	0.4	50	0.1	0.02	0.2	tr	tr	tr	0	9
Pineapple juice	190	3/4 c	105	0.8	0.6	25	30	15	20	2	280	tr	0.1	0.6	100	0.1	0.04	0.4	0.2	0.2	tr	0	15
Pinenuts, piñon	30	1 oz, 4 tbsp	180	3.5	17.0	6	3	170	tr	tr	tr	tr	tr	1.5	10	0.4	0.07	1.3	tr	tr	tr	tr	tr
Pizza, cheese	65	1/8 of 14 in pizza	150	8.0	5.5	18	145	125	20	456	85	0.8	0.2	0.7	400	0.04	0.1	0.7	tr	tr	tr	tr	5
Sausage	65	1/8 of 14 in pizza	160	5.0	6.0	20	10	80	tr	490	115	0.8	tr	0.8	400	0.06	0.08	1.0	tr	tr	tr	tr	6
Plantain	265	1 banana 11 in x 2 in	310	3.0	1.0	82	20	80	tr	15	1010	tr	tr	1.6	tr	0.2	0.1	1.6	tr	0.7	tr	0	36
Plums, raw	70	1 medium	30	0.3	0.1	8	10	10	6	1	110	tr	0.07	0.3	150	0.02	0.02	0.3	0.04	0.1	1	0	4
Canned, purple in heavy syrup	140	3 and 3 tbsp syrup	110	0.5	0.1	30	10	15	7	1	190	tr	tr	1.2	500	0.03	0.03	0.5	0.04	0.1	tr	0	3
Popcorn with oil and salt	10	1 c	40	0.9	2.0	5	1	20	10	175	tr	0.2	0.03	0.2	tr	tr	0.01	0.2	0.02	0.06	0	0	0
Pork																							
Chop, broiled																							
lean and fat	80	1 medium	300	19.5	24.5	0	10	210	15	45	215	tr	tr	2.7	0	0.8	0.2	4.5	0.3	0.5	3	0.4	0
lean only	50	1 medium	110	13.0	6.5	0	5	135	10	30	145	1.5	0.04	1.6	0	0.5	0.1	2.9	0.1	0.2	2	0.2	0
Loin, roasted																							
lean and fat	85	2½ in x 2½ in x ¾ in	310	21.0	24.0	0	10	220	20	50	235	tr	0.05	2.7	0	0.8	0.2	4.8	0.3	0.5	1	0.5	0
Spareribs, braised	90	yield from ½ lb, raw wt.	400	18.5	35.0	0	15	220	tr	65	300	tr	tr	4.7	0	0.8	0.4	6.1	tr	tr	tr	0.6	0
Potatoes																							
Baked	200	1 large	140	4.0	0.2	35	15	100	45	5[15]	780	0.4	0.3	1.1	tr	0.2	0.07	2.7	0.5	0.8	20	0	30
Boiled, pared before cooking	135	1 medium	90	2.5	0.1	20	10	55	tr	3[15]	385	0.4	0.1	0.7	tr	0.1	0.05	1.6	0.5	0.8	10	0	20
French-fried																							
commercial[14]	70	1 "order"	220	3.0	10.2	28	9	70	20	120	tr	tr	tr	0.4	tr	0.1	0.04	2.4	0.2	tr	5	0	9
frozen, reheated	100	20 strips	220	3.5	8.4	35	10	90	30	4[15]	660	0.3	0.3	0.8	tr	0.1	0.02	2.6	0.2	0.5	10	0	20
Mashed with milk	100	1/2 c	100	2.0	4.5	13	25	50	15	350	260	0.1	0.1	0.4	200	0.08	0.05	1.0	0.1	0.2	10	0	10
Potato chips	20	10 chips, 2 in diameter each	115	1.0	8.0	10	10	30	10	200	225	0.2	0.04	0.4	tr	0.04	0.01	1.0	0.04	0.1	2	0	3
Potato salad. See Salads.																							
Pretzels	30	10, 3-ring pretzels	120	3.0	1.5	25	5	40	tr	500	90	0.3	0.04	0.5	0	0.01	0.02	0.4	0.01	0.2	tr	tr	0
Prunes, dried, raw	50	5	130	1.0	0.3	36	25	40	tr	4	365	tr	0.1	2.0	800	0.04	0.08	0.8	0.1	0.2	tr	0	2
Cooked without sugar	125	1/2 c	120	1.0	0.3	36	25	40	tr	4	350	tr	0.2	1.9	800	0.04	0.08	0.8	tr	tr	tr	0	1
Prune juice, canned	190	3/4 c	150	0.8	0.2	36	25	40	tr	4	450	tr	0.04	2.0	800	0.02	0.02	0.8	tr	tr	tr	tr	4
Puddings																							
Almendrado	65	1/3 c and 2 tbsp sauce	100	2.7	4.3	14	35	50	tr	25	90	tr	tr	0.3	250	0.02	0.08	0.03	0.02	0.3	8	0.4	tr
Apple Brown Betty	110	1/2 c	160	1.5	4.0	30	20	25	5	185	110	tr	tr	0.6	100	0.06	0.04	0.4	tr	tr	tr	tr	1
Capirotada	155	1/2 c	385	10.8	14.0	58	230	200	tr	335	365	tr	tr	2.5	250	0.10	0.20	3.0	0.10	0.4	8	0.3	0
Chocolate, instant, packaged	130	1/2 c	160	5.0	3.0	30	165	120	tr	160	170	tr	tr	0.4	150	0.04	0.20	0.2	tr	tr	tr	tr	0

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Nutrient Composition Table—Continued

							Minerals								Vitamins								
Food	Weight g	Approximate Measure	Energy Kcal	Protein g	Fat g	Total Carbohydrate g	Calcium mg	Phosphorus mg	Magnesium mg	Sodium mg	Potassium mg	Zinc mg	Copper mg	Iron mg	Total Vitamin A Activity IU	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Pantothenic Acid mg	Folacin (free) mcg	Vitamin B-12 mcg	Vitamin C mg
Puddings, continued																							
Custard	130	1/2 c	150	7.0	7.5	15	150	155	u	105	195	u	u	0.6	450	0.06	0.2	0.2	u	u	4	u	tr
Rice with raisins	130	1/2 c	200	5.0	4.0	35	130	125	u	95	235	0.4	0.04	0.6	150	0.04	0.2	0.2	u	u	5	u	tr
Tapioca	80	1/2 c	110	4.0	4.0	14	85	90	u	130	110	u	0.04	0.4	250	0.04	0.2	0.1	u	u	2	u	0
Vanilla, home recipe	130	1/2 c	140	4.5	5.0	20	150	115	u	85	175	u	0.05	tr	200	0.04	0.2	0.2	u	u	u	u	0
Pumpkin, canned	245	1 c	80	2.5	0.7	19	60	65	30	5[11]	560	u	0.3	1.0	15,700	0.07	0.1	1.5	0.1	1.0	4	0	10
Radishes, raw	45	5 large	7	0.4	tr	1	10	10	7	10	130	0.1	0.04	0.4	5	0.01	0.01	0.1	0.03	0.08	10	0	10
Raisins	35	1/4 c	100	0.9	0.1	30	20	35	10	10	275	0.06	0.08	1.3	10	0.04	0.03	0.2	0.08	0.2	1	0	tr
Rhubarb, cooked with sugar	135	1/2 c	190	0.7	0.2	50	105	20	20	2	275	0.1	0.1	0.8	100	0.02	0.07	0.4	0.03	0.09	10	0	8
Rice cooked, salt added																							
Brown	130	2/3 c	180	3.5	0.8	35	15	95	40	370	90	0.8	0.1	0.7	0	0.1	0.03	1.8	0.2	0.5	10	0	0
White, enriched	135	2/3 c	150	3.0	0.1	35	15	85	10	515	40	0.5	0.07	1.2	0	0.2	0.01	1.4	0.05	0.3	1	0	0
Precooked, instant	110	2/3 c	120	2.5	tr	25	3	20	u	300	u	0.2	u	0.9	0	0.1	u	1.1	u	u	u	0	0
Rolls and buns																							
Danish pastry	65	1, of 4 in diameter	270	5.0	15.5	30	35	70	15	240	75	u	u	0.6	200	0.04	0.1	0.5	u	u	5	u	tr
Hamburger or frankfurter bun, enriched	40	1 average	120	3.5	2.0	20	30	35	10	200	40	0.2	0.08	0.8	tr	0.1	0.07	0.9	u	u	5	u	0
Hard rolls, enriched	50	1 large	160	5.0	1.5	30	25	45	15	315	50	0.6	u	1.2	tr	0.1	0.1	1.4	u	u	6	0	0
Plain pan rolls, white, enriched	30	1 small	85	2.5	1.5	15	20	25	10	140	25	0.4	u	0.5	tr	0.08	0.05	0.8	0.01	0.09	4	u	0
Rutabagas, boiled	85	1/2 c, cubed	30	0.8	0.1	7	50	25	12	4	140	u	u	0.2	500	0.05	0.05	0.7	0.08	0.1	u	0	20
Salads																							
Chef's (lettuce w/ham, cheese, dressing)[18]	u	1 serving	285	13.0	24.0	3	150	185	u	u	u	u	u	2.2	1250	0.2	0.2	1.2	u	u	u	u	13
Potato, home recipe	125	1/2 c	120	3.5	3.5	20	40	80	u	650	400	0.3	u	0.8	150	0.1	0.09	1.4	u	u	u	u	14
Tuna fish	100	1/2 c	170	15.0	10.0	4	20	145	u	u	u	u	u	1.3	250	0.04	0.1	5.1	u	u	u	u	1
Salad dressings																							
Blue cheese	15	1 tbsp	75	0.7	8.0	1	10	10	u	165	5	0.04	u	tr	30	tr	0.02	tr	u	u	u	tr	tr
French, regular	15	1 tbsp	65	0.1	6.0	3	2	2	2	220	15	0.01	u	0.1	u	u	u	u	u	u	u	0	u
low-calorie	15	1 tbsp	15	0.1	0.7	3	2	2	u	125	15	u	u	0.1	u	u	u	u	u	u	u	0	u
Italian, regular	15	1 tbsp	85	tr	9.0	1.0	2	1	1	315	2	0.02	0.1	tr	tr	tr	tr	tr	0	0	0	0	0
low-calorie	15	1 tbsp	10	tr	0.7	0.4	tr	1	u	120	2	u	u	tr	tr	tr	tr	tr	0	0	0	0	0
Mayonnaise	15	1 tbsp	100	0.2	11.0	0.3	3	4	tr	85	5	0.02	0.04	0.1	40	tr	0.01	tr	u	0.02	0	0	0
Salad dressing	15	1 tbsp	65	0.2	6.5	2.0	2	4	tr	90	1	0.08	u	tr	30	tr	tr	tr	0	0.02	u	0	0
Thousand Island, or Louie-type	15	1 tbsp	80	0.1	8.0	2.5	2	3	u	110	20	0.02	u	0.1	50	tr	tr	tr	u	u	u	u	tr
Salmon. See Fish.																							

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Nutrient Composition Table—Continued

							Minerals								Vitamins								
Food	Weight g	Approximate Measure	Energy Kcal	Protein g	Fat g	Total Carbohydrate g	Calcium mg	Phosphorus mg	Magnesium mg	Sodium mg	Potassium mg	Zinc mg	Copper mg	Iron mg	Total Vitamin A Activity IU	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Pantothenic Acid mg	Folacin (free) mcg	Vitamin B-12 mcg	Vitamin C mg
Sandwiches																							
Bacon, lettuce, tomato on white bread	150	1 average	280	7.0	15.5	30	55	90	u	u	u	u	u	1.5	850	0.2	0.1	1.5	u	u	u	u	15
Egg salad on white bread	140	1 average	280	10.5	12.5	30	70	155	u	u	u	u	u	2.4	600	0.2	0.02	1.0	u	u	u	u	2
Fish fillet, fried on bun[14]	135	1 average	410	15.0	21.5	37	95	235	20	760	u	u	u	1.6	80	0.2	0.4	2.9	0.1	u	20[16]	0.8	2
Ham and cheese on white bread[13]	u	1 average	350	20.0	19.0	30	215	240	u	u	u	u	u	3.1	300	0.4	0.3	2.5	u	u	u	u	0
Hamburger on bun[14]	95	1 regular	250	13.0	9.6	28	50	120	15	540	u	u	u	2.6	160	0.2	0.4	3.7	0.1	u	20[16]	0.8	4
"Big Mac"[14]	185	1 large	560	26.0	32.0	40	160	290	30	1060	u	u	u	3.8	200	0.8	0.6	6.5	0.2	u	30[16]	1.5-	5
Tuna salad on white bread	105	1 average	280	11.0	14.0	25	50	135	u	u	u	u	u	1.2	250	0.1	0.1	4.0	u	u	u	u	1
Sashimi. See *Fish*, tuna, raw.																							
Sardines. See *Fish.*																							
Sauces																							
Butterscotch	45	2 tbsp	200	0.5	7.0	35	40	25	u	u	u	u	u	1.4	300	tr	tr	tr	u	u	u	0	0
Cheese	40	2 tbsp	65	3.0	5.0	2	90	65	u	u	u	u	u	0.1	200	0.01	0.08	0.1	u	u	u	u	tr
Chocolate																							
thin syrup	40	2 tbsp	100	0.9	0.8	25	7	35	u	u	u	u	0.2	0.6	tr	0.01	0.03	0.2	u	u	u	0	0
fudge type	40	2 tbsp	125	2.0	5.0	20	50	60	u	35	105	u	u	0.5	60	0.02	0.08	0.2	u	u	u	tr	0
Custard	70	1/4 c	85	3.5	4.0	10	80	80	u	u	u	u	u	0.4	250	0.04	0.2	0.1	u	u	u	u	tr
Hard sauce	20	2 tbsp	95	0.1	5.5	12	2	1	u	u	u	u	u	tr	250	tr	tr	tr	0	0	0	0	0
Hollandaise	50	1/4 c scant	180	2.0	18.5	0.4	25	80	u	u	u	u	u	0.9	1000	0.03	0.04	tr	u	u	u	u	tr
Soy	35	2 tbsp	25	2.0	0.5	4	30	40	u	2665	135	u	u	1.7	0	0.01	0.09	0.1	u	u	u	0	0
Tartar	15	1 tbsp	75	0.2	8.0	0.6	3	4	u	100	10	u	u	0.1	30	tr	tr	tr	u	u	u	u	tr
Tomato catsup	15	1 tbsp	15	0.3	0.1	4	3	10	3	155	55	0.04	0.09	0.1	200	0.01	0.01	0.2	0.02	u	tr	0	2
White, medium	125	1/2 c	200	5.0	15.5	11	145	115	20	475	175	0.5	0.05	0.2	600	0.05	0.2	0.2	0.06	0.8	1	0.2	1
Sauerkraut, canned	120	1/2 c	20	1.0	0.2	5	40	20	u	880	165	1.0	0.1	0.6	60	0.04	0.04	0.2	0.2	0.1	u	0	16
Sausages																							
Bologna	30	1 slice, 4¼ in x 1/8 in	85	3.5	8.0	0.3	2	35	u	370	65	0.5	tr	0.5	0	0.05	0.06	0.7	0.03	u	1	u	0
Frankfurter (all-meat)	45	1 average	135	5.5	12.0	0.7	2	45	u	u	u	0.7	0.04	0.7	0	0.07	0.09	1.1	0.06	0.2	1	0.6	0
Liverwurst	30	1 oz	85	4.5	7.0	0.5	3	70	5	u	u	2.2	0.9	1.5	1800	0.06	0.4	1.6	0.06	0.8	6	4.2	tr
Luncheon meat, pork, cured	30	1 oz	85	4.5	7.0	0.4	3	30	u	350	65	u	0.02	0.6	0	0.09	0.06	0.9	u	0.2	1	u	0
Pork sausage, links	40	3 links	185	7.0	17.0	tr	3	60	5	375	105	0.2	0.06	0.9	0	0.3	0.1	1.5	0.07	0.3	1	[illegible]	0
Salami, dry	30	3 small slices	130	6.5	11.0	0.3	4	80	u	u	u	u	u	1.0	0	0.1	0.07	1.5	0.04	u	1	u	0
Vienna, canned	50	3 sausages	115	6.5	9.5	0.1	3	75	u	u	u	u	u	0.9	0	0.03	0.06	1.2	0.04	u	1	u	0
Scallops																							
Breaded, fried	95	3½ oz	180	17.0	8.0	10	u	u	u	u	u	u	0.1	u	0	u	u	u	u	0.1	15	u	0
Steamed	95	3½ oz	105	22.0	1.5	3	110	320	u	250	455	u	0.1	2.8	0	u	0.06	1.3	u	u	18	1.1	u
Sesame seeds, hulled	40	1/4 c	220	7.0	20.0	7	40	220	7	u	u	u	0.6	0.9	0	0.07	0.05	2.0	u	u	25	0	0
Sherbet, orange	95	1/2 c	135	1.0	2.0	30	50	75	8	45	100	0.6	0.02	0.1	90	0.01	0.04	tr	0.01	tr	7[14]	0.1	2
Shrimp, canned	85	3 oz	100	20.5	0.9	0.6	100	225	45	u	105	1.8	0.1	2.7	60	0.01	0.03	1.5	0.05	0.2	6	u	0
French-fried	85	3 oz	190	17.5	9.5	8	60	160	40	160	195	0.8	0.3	1.8	u	0.03	0.06	2.5	0.05	0.3	5	0.6	0
Soups																							
Albondiga (meatballs in tomato broth)	240	1 c with 4 meatballs	340	18.5	21.4	17	25	175	u	180	460	u	u	3.6	500	0.2	0.2	5.0	0.6	0.7	10	1.2	8

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Nutrient Composition Table—Continued

							Minerals								*Vitamins*								
Food	*Weight* *g*	*Approximate Measure*	*Energy* *Kcal*	*Protein* *g*	*Fat* *g*	*Total Carbohydrate* *g*	Calcium mg	Phosphorus mg	Magnesium mg	Sodium mg	Potassium mg	Zinc mg	Copper mg	Iron mg	Total Vitamin A Activity IU	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Pantothenic Acid mg	Folacin (free) mcg	Vitamin B-12 mcg	Vitamin C mg
Soups, continued																							
Bean, with pork	250	1 c	170	8.0	6.0	22	65	130	u	1010	395	u	u	2.3	650	0.1	0.08	1.0	u	u	u	u	3
Bouillon, broth, consomme	240	1 c	30	5.0	0	3	tr	30	u	780	130	u	0.02	0.5	tr	tr	0.02	1.0	u	u	u	u	0
Cream soups, canned,																							
diluted with water	240	1 c	65	2.5	1.5	10	25	40	u	985	120	u	u	0.7	300	0.06	0.1	0.7	u	u	u	u	u
diluted with milk	245	1 c	150	7.0	6.0	17	175	160	u	1070	300	u	u	0.7	500	0.07	0.3	0.7	u	u	10	u	tr
Chicken noodle, from dry mix	240	1 c	55	2.0	1.5	8	7	20	u	580	20	0.1	0.1	0.2	50	0.07	0.05	0.5	u	u	u	u	0
Clam chowder, Manhattan	245	1 c	80	2.0	2.5	12	35	45	u	940	185	1.4	u	1.0	900	0.02	0.02	1.0	u	u	8	u	u
Onion	240	1 c	35	1.5	1.0	6	10	10	u	690	60	0.07	u	0.2	tr	tr	tr	tr	u	u	u	u	2
Split pea	245	1 c	140	8.5	3.0	20	30	150	15	940	270	1.0	0.2	1.5	450	0.2	0.2	1.5	0.1	0.2	2	0.4	tr
Tomato	245	1 c	90	2.0	2.5	16	15	35	15	970	230	0.2	0.2	0.7	1000	0.06	0.05	1.0	0.06	0.2	5	0	10
Vegetable beef	245	1 c	80	5.0	2.0	10	10	50	25	1060	160	0.4	0.1	0.7	2700	0.05	0.05	1.0	0.07	0.2	5	u	u
Spaghetti																							
Canned, with tomato sauce and meatballs[17]	210	1 can, 7½ oz	250	10.4	12.8	23	20	120	u	1035	375	u	0.3	2.2	1030	0.15	0.2	3.4	u	u	u	u	u
Home recipe, with tomato sauce																							
with cheese	250	1 c	260	9.0	9.0	35	80	135	30	955	410	0.2	0.3	2.3	1100	0.2	0.2	2.5	0.1	0.8	2	0.6	15
with meatballs	250	1 c	330	18.5	11.5	40	125	235	40	1010	665	3.5	0.4	3.7	1600	0.2	0.3	4.0	0.4	0.5	15	0.6	20
Spinach, fresh or frozen, boiled	90	1/2 c	20	2.5	0.2	3	90	40	60	50	300	0.5	0.1	2.0	7300	0.06	0.1	0.4	0.2	0.2	60	0	20
Sprouts, raw																							
Alfalfa	100	1 c, packed	40	5.0	0.6	5	30	u	u	u	u	1.0	u	1.4	u	0.1	0.2	1.5	u	u	u	0	15
Mung bean	100	1 c	35	4.0	0.2	7	20	65	u	5	235	0.9	u	1.4	20	0.1	0.1	0.8	u	u	u	0	20
Soybean	100	1 c	50	6.5	1.5	6	50	70	u	u	u	1.6	u	1.1	80	0.2	0.2	0.8	u	u	u	0	15
Squash																							
Summer, boiled	90	1/2 c	10	0.8	0.1	3	20	20	15	1	125	0.2	0.07	0.4	350	0.04	0.07	0.7	0.2	0.1	2	0	9
Winter																							
baked	100	1/2 c	65	2.0	0.4	15	30	50	17	1	470	u	u	0.8	430	0.05	0.1	0.7	0.09	0.3	u	0	15
boiled	120	1/2 c	45	1.5	0.4	10	25	40	17	1	315	u	u	0.6	4300	0.05	0.1	0.5	0.1	0.3	u	0	10
Strawberries																							
Fresh	100	2/3 c whole	35	0.7	0.5	8	20	20	12	1	165	0.08	u	1.0	60	0.03	0.07	0.6	0.06	0.3	15	0	60
Frozen, sweetened	170	2/3 c	160	0.7	0.3	40	20	25	14	2	180	u	u	1.0	50	0.03	0.1	0.9	0.07	0.2	15	0	95
Sugar																							
Brown	220	1 c, packed	820	0	0	210	185	40	u	65	755	u	0.7	7.5	0	0.02	0.07	0.4	u	u	u	0	0
White																							
granulated	200	1 c	770	0	0	200	0	0	0	2	5	0.1	0.04	0.2	0	0	0	0	0	0	0	0	0
	4	1 tsp	15	0	0	4	0	0	0	tr	tr	tr	tr	tr	0	0	0	0	0	0	0	0	0
powdered	8	1 tbsp	30	0	0	8	0	0	0	tr	tr	tr	tr	tr	0	0	0	0	0	0	0	0	0
Sunflower seeds, hulled	35	1/4 c	200	8.5	17.0	7	45	305	13	10	335	u	0.6	2.6	20	0.7	0.08	2.0	0.4	0.5	u	0	0

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Nutrient Composition Table—Continued

Food	Weight g	Approximate Measure	Energy Kcal	Protein g	Fat g	Total Carbohydrate g	Minerals								Vitamins								
							Calcium mg	Phosphorus mg	Magnesium mg	Sodium mg	Potassium mg	Zinc mg	Copper mg	Iron mg	Total Vitamin A Activity IU	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Pantothenic Acid mg	Folacin (free) mcg	Vitamin B-12 mcg	Vitamin C mg
Sweet potatoes																							
Baked in skin	145	1 potato, 5 in x 2 in	160	2.5	0.6	35	45	65	45	15	340	1.0	0.2	1.0	9200	0.1	0.08	0.8	0.05	1.0	10	0	25
Boiled in skin	130	1/2 c mashed	150	2.0	0.5	35	40	60	u	15	620	u	0.2	0.9	9200	0.1	0.08	0.8	0.3	1.0	9	0	20
Candied	105	1/2 medium	180	1.5	3.5	35	40	45	u	45	200	u	0.06	0.9	5600	0.06	0.04	0.4	u	u	7	0	10
Syrup, maple-flavored, artificial	20	1 tbsp	50	0	0	13	20	2	u	2	35	tr	0.08	0.2	0	0	0	0	0	0	0	0	0
Tacos, beef	80	1 taco	160	11.C	8.5	9	135	160	u	200	210	u	u	2.0	530	0.07	0.1	2.3	0.3	0.3	25	0.7	3
Tamales, canned	100	3½ oz	140	4.5	7.0	14	20	40	10	665	u	0.9	0.05	1.2	u	u	u	u	u	u	u	u	u
Home recipe, chicken	130	2 tamales	275	8.3	23.7	8	100	60	u	60	90	u	u	0.9	2800	0.05	0.1	2.7	0.2	0.3	1	0.1	7
Tea, instant	1	1/2 tsp	3	0	0	1	tr	u	4	u	45	u	u	tr	0	0	tr	tr	u	u	u	0	0
Tofu, soybean curd	120	1 piece, 2⅝ in x 2¾ in x 1 in	85	9.5	5.0	3	155	150	130	10	50	u	u	2.3	0	0.07	0.04	0.1	u	u	u	0	0
Tomatoes, raw	135	1 medium	25	1.5	0.2	6	15	35	20	4	300	0.3	0.1	0.6	1100	0.07	0.05	0.9	0.1	0.4	25	0	30
Canned	120	1/2 c	25	1.0	0.2	5	5	25	15	155	260	0.2	0.2	0.6	1100	0.06	0.04	0.8	0.1	0.3	10	0	20
Tomato juice, canned	180	3/4 c	35	1.5	0.2	8	15	35	20	365	415	u	0.1	1.6	1500	0.09	0.05	1.5	0.3	0.4	18	0	30
Tomato paste	130	1/2 c	110	4.5	0.5	25	35	90	25	50[11]	1120	u	0.9	4.6	4300	0.3	0.2	4.0	0.5	0.6	25	0	65
Tongue, beef, braised	100	3½ oz	250	21.5	17.0	0.4	5	120	16	60	165	u	0.07	2.2	0	0.05	0.3	3.5	0.1	2.0	u	u	0
Tortillas																							
Corn, lime-treated	30	1, of 6 in diameter	65	1.5	0.6	14	60	40	30	u	u	0.03	0.06	0.9	tr	0.04	0.02	0.3	0.02	0.03	tr	0	0
White flour	30	1, of 6 in diameter	110	3.0	1.0	20	4	50	15	250	30	u	u	1.0	0	0.08	0.04	0.5	0.02	0.03	5	0	0
Tostada with beans and small portion of cheese	210	1 tostada	335	11.6	17.6	35	195	245	u	350	425	u	u	3.2	1650	0.3	0.2	1.3	0.2	0.4	10	0.2	10
Tuna. *See Fish.*																							
Turkey, roasted																							
Light meat	85	2 slices, each 4 in x 2 in x ¼ in	150	28.0	3.5	0	7	200	20	70	350	1.8	0.2	1.0	u	0.04	0.1	9.5	0.3	0.5	3	0.4	0
Dark meat	85	4 slices, each 2½ in x 1½ in x ¼ in	170	25.5	7.0	0	7	200	20	85	340	3.7	0.2	2.0	u	0.03	0.2	3.5	0.3	1.0	7	0.4	0
Turnips, boiled	80	1/2 c, cubed	20	0.6	0.2	4	25	20	10	25	145	0.07	0.03	0.3	tr	0.03	0.04	0.2	0.06	0.08	u	0	15
Turnip greens, boiled	70	1/2 c	15	1.5	0.2	3	135	25	20	u	u	u	u	0.8	4600	0.1	0.2	0.4	0.7	0.1	u	0	50
Veal cutlet, broiled	85	3 oz	180	23.0	9.5	0	10	195	20	55	260	4.1	0.04	2.7	0	0.06	0.2	4.5	0.3	0.8	15	1.6	0
Vinegar, cider	15	1 tbsp	2	tr	0	1	1	1	u	tr	15	0.02	0.01	0.1	0	0	0	0	0	0	0	0	0
Waffles																							
Made from mix	75	1, of 7 in diameter	210	6.5	8.0	25	180	260	20	515	145	u	u	1.0	200	0.1	0.2	0.7	u	0.5	u	u	0
Frozen[10]	45	2 sections	120	3.0	4.0	16	130	195	u	340	u	u	u	0.5	u	0.04	0.05	0.5	u	u	u	u	0
Walnuts, English	100	1 c halves	650	15.0	64.0	16	100	380	135	2	450	2.8	0.9	3.1	30	0.3	0.1	0.9	0.7	0.9	45[16]	0	2
	15	2 tbsp, chopped	100	2.5	10.0	3	15	60	20	tr	70	0.4	0.1	0.4	10	0.06	0.02	0.2	0.1	0.1	5[16]	0	tr

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Nutrient Composition Table—Continued

Food	Weight g	Approximate Measure	Energy Kcal	Protein g	Fat g	Total Carbohydrate g	Minerals								Vitamins								
							Calcium mg	Phosphorus mg	Magnesium mg	Sodium mg	Potassium mg	Zinc mg	Copper mg	Iron mg	Total Vitamin A Activity IU	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Pantothenic Acid mg	Folacin (free) mcg	Vitamin B-12 mcg	Vitamin C mg
Watercress, *raw*	35	10 sprigs	5	0.8	0.1	1	55	20	5	20	100	u	0.03	0.6	1700	0.03	0.06	0.3	0.04	0.1	70[10]	0	30
Wheat bran, crude	30	1 oz	60	4.5	1.0	17	35	355	135	3	315	2.7	0.4	4.2	0	0.2	0.1	6.0	0.2	0.1	u	0	0
Wheat germ, *raw*	30	1 oz	100	7.5	3.0	13	20	315	90	tr	230	1.7	0.7	2.6	u	0.6	0.2	1.0	0.3	0.9	80	0	0
Toasted	30	1 oz	120	9.0	3.5	15	15	350	90	tr	285	1.7	0.7	2.5	50	0.5	0.2	1.5	0.3	0.4	u	0	0
Wine, dessert (18.8%)	105	3½ fl oz	140	0.1	0	8	10	u	5	4	75	0.1	0.08	0.4	u	0.01	0.02	0.2	0.04	0	0	0	0
Table (12.2%)	100	3½ fl oz	85	0.1	0	4	10	10	10	5	95	0.1	0.01	0.4	u	tr	0.01	0.1	0.04	0	0	0	0
Yeast																							
Dry, active	5	1 tbsp	20	2.5	0.1	3	3	90	3	4	140	u	0.2	1.1	tr	0.2	0.4	2.5	0.1	0.6	7	0	0
Brewer's, debittered	5	1 tbsp	25	3.0	0.1	3	15	140	10	10	150	u	u	1.4	tr	1.2	0.3	3.0	0.1	0.6	9	0	0
Yogurt																							
Low-fat																							
plain	230	8 fl oz carton	145	12.0	3.5	16	415	325	40	160	530	2.0	u	0.2	150	0.1	0.5	0.3	0.1	1.3	25[14]	1.3	2
fruit, sweetened	230	8 fl oz carton	225	9.0	2.6	42	315	245	30	120	400	1.5	u	0.1	110	0.08	0.4	0.2	0.1	1.0	20[14]	1.0	1
Regular																							
plain	230	8 fl oz carton	140	8.0	7.5	11	275	215	25	105	350	1.3	u	0.1	280	0.07	0.3	0.2	0.1	0.9	20[14]	0.8	2

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Minimum Proficiency Levels for Nutrition Education Preschool Through Grade Twelve

Through the enactment of state legislation and participation in federal child nutrition programs, California has made a major commitment to nutrition education. With financial support provided by the Child Nutrition Facilities Act (Senate Bill 120) and the National School Lunch Act and Child Nutrition Amendments (Public Law 95-166), California has established a comprehensive nutrition education and training program.

The goal of the Nutrition Education and Training Program is to enable individuals to develop the knowledge and skills necessary to make wise food choices, which will contribute to their overall health and well-being throughout their lives.

In an attempt to achieve systematically the goal of nutrition education, minimum proficiency levels for students were developed jointly by staff members of the State Department of Education, food service representatives, nutrition education specialists, teachers, and curriculum specialists. Those levels of performance are identified in the charts that appear on the following pages. The charts present an outline of expected performance in nutrition education for students enrolled in preschool, kindergarten, primary grades, upper elementary grades, and junior and senior high schools. The minimum proficiency levels support the nutrition concepts found in the *Health Instruction Framework for California Public Schools*, which was adopted by the State Board of Education in 1977. As nutrition education specialists, teachers, food service personnel, and aides design classroom activities, the minimum proficiency levels will provide a foundation for nutrition instruction, curriculum development, and evaluation.

Projects funded under either the Child Nutrition Facilities Act or Public Law 95-116 will use the minimum proficiency levels as a basis for their nutrition education programs. Persons responsible for planning and implementing nutrition education programs should plan to address each performance standard required for students to achieve proficiency in nutrition education. They may, in addition, expand the performance standards to include additional activities.

Topics	Minimum standards of performance in nutrition	
	Preschool age/kindergarten (Ages three—five)	Early childhood (Primary grades, ages six—eight)
A. Food Choices Daily food intake is related to the attainment of optimum health. • Food classifications make it easier to select foods that will help a person achieve a nutritionally adequate diet. • A variety of foods can be combined to help ensure a nutritionally adequate diet that includes the nutrients that are necessary for optimum health.	*Students will:* Name a variety of foods.	*Students will:* Classify the foods in the Basic Four Food Groups. Identify the number of servings needed daily from each of the Basic Four Food Groups. Identify the food groups that should be included within the school lunch pattern.
• Foods contain the nutrients the human body requires to function properly, and the interrelationships among nutrients are important for promoting health.	Identify one reason why we need food.	Identify two diet-related health problems and the kinds of foods associated with the problems. Identify two sequential steps in the process of digestion.
• Nutritional needs vary for individuals.		Identify one activity which requires less energy (from food) and one activity which requires more energy (from food).
• Food is a component of the ecosystem, and many products can be combined for appropriate menus. • Animal and plant products are substances of the food supply and are components of the ecosystem.	Classify foods as being of plant or animal origin.	Classify foods from plants as fruits, vegetables, or grains. Classify foods from animals as meat, poultry, milk, eggs, or fish.

Nutrition Education Program

education, according to developmental levels of students

Preadolescent *(Upper elementary, ages nine—eleven)*	Adolescent *(Junior high, ages twelve—fifteen)*	Young adult *(High school, ages sixteen—eighteen)*
Students will: Identify one major nutrient provided by each of the Basic Four Food Groups. Plan a nutritionally adequate meal that would ensure a nutritious eating pattern. Specify one reason why the school lunch pattern contributes to nutritional health.	*Students will:* Select menu alternatives to maintain a nutritionally adequate meal. Select a school lunch that meets personal nutrient and caloric needs.	*Students will:* Distinguish facts from fallacies concerning the nutritional value of foods. Given limited food resources, select a nutritionally adequate diet based on nutrient criteria.
Name the six nutrient groups. Identify at least one function for each of the six major nutrient groups. Recognize the pathway of food during the process of digestion.	Recognize that a calorie is a measure of the energy value of food.	Identify the purpose of the recommended dietary allowances. Identify the physiological processes involved in the digestion, absorption, and metabolism of nutrients.
Cite two reasons for the difference in the amount of food required by individuals.	Identify at least two of the effects food choices have on a person's physical fitness and appearance.	Identify at least two ways that food habits and exercise, environment, work, and leisure activities interact to affect health. Explain how stress influences nutritional needs. Plan a nutritionally adequate diet that will result in a person's achieving or maintaining desired weight.
Identify foods from plants or animals that are a major source of carbohydrate, protein, or fat.	Specify a combination of two foods from plants that contain complementary proteins. Identify one reason to include whole grains in a diet.	Identify one way a vegetarian can obtain a nutritionally balanced diet.

Topics	*Minimum standards of performance in nutrition*	
	Preschool age/kindergarten *(Ages three—five)*	*Early childhood* *(Primary grades, ages six—eight)*
B. Factors Influencing Food Choices Life-styles, peers, and individual family resources reflect similarities and differences in food choices. • Eating patterns are formed by interrelationships of physical, social, psychological, environmental, and cultural influences.	*Students will:* Identify one practice that makes mealtime enjoyable. Identify one influence on food choices.	*Students will:* Identify two aspects of a school dining environment that may affect behavior. Specify two nutritious snack foods that could be brought to school for class parties. Recognize that families have different ways of selecting and serving food.
C. Food-Related Careers Needs, roles, responsibilities, and educational requirements affect choices in food and health nutrition-related careers. • Food-related occupations exist for society's purposes and contribute to society's ways of living.	Identify the roles of the farmer, truck driver who transports food, storekeeper, and family members in food availability.	Identify two titles of people who process, prepare, or serve food. Identify titles of two health professionals who provide advice on food selection in relationship to dental and general health.

education, according to developmental levels of students

Preadolescent (Upper elementary, ages nine—eleven)	Adolescent (Junior high, ages twelve—fifteen)	Young adult (High school, ages sixteen—eighteen)
Students will: Identify how home and/or social eating environments influence food selection. Identify two ways aesthetic and sensory qualities influence food choices. Specify one example of a food associated with a different country/community and its nutrient contribution.	*Students will:* Identify how an emotional feeling influences eating behavior. Identify how different cultural food patterns supply nutritionally adequate diets.	*Students will:* Identify how social conditions influence eating behavior. Identify one major nutritional problem in other areas of the world and a possible solution to the problem.
Identify the role of the sanitarian, nutritionist, dietitian, and research scientist.	Identify the career possibilities in the following food-related fields: consumer food advocacy, agriculture, and food services.	Identify the educational requirements of two specific careers in nutrition, food technology, consumerism, and food safety. Identify contributions of nutrition knowledge to other disciplines.

Topics	*Minimum standards of performance in nutrition*	
	Preschool age/kindergarten *(Ages three—five)*	*Early childhood* *(Primary grades, ages six—eight)*
D. Consumer competencies **Effective utilization of the existing resources may enhance the potential for satisfying individual and family nutritional needs and wants.** • Merchandising techniques influence food selection. • **Consumers, through food choices, affect the production and distribution of food.** • **Labeling provides consumers information to make satisfying food choices.**	*Students will:* Identify one purpose of television commercials. Recognize what can be done to avoid being wasteful when serving food.	*Students will:* Identify how advertisements influence selection of breakfast and snack foods. Identify one way of decreasing food waste during lunch at school. Given a food label, recognize the main ingredient in the product.
E. Food Handling* The quality and safety of foods are influenced by handling, processing, and preparing of foods. • Food production is influenced by technology and environmental factors. • **Food availability and quality are dependent upon food handling techniques.** • Sanitation practices in food processing and preparation are necessary for optimum health. ***Note: Handling means everything that happens to food while it is being grown, processed, preserved, stored, and prepared for eating.**	Identify what makes plants grow. Specify why and how persons should wash their hands before food is handled or eaten. Identify one way of preparing food for eating. Identify one way to store food that helps to keep it fresh and clean.	Identify two sanitation procedures that should be practiced when food is prepared. Identify two ways of cooking food. Identify two foods that must be stored at a cool temperature.

education, according to developmental levels of students

Preadolescent (*Upper elementary, ages nine—eleven*)	*Adolescent* (*Junior high, ages twelve—fifteen*)	*Young adult* (*High school, ages sixteen—eighteen*)
Students will: Specify one way students can improve the environment in the school lunchroom. Specify one way a student can have an influence on the school lunch menu selection. Use unit pricing to get the best buy when purchasing snack foods.	*Students will:* Specify one way a consumer can influence decisions made in the food industry. Specify one way the student can influence the school food service program. Identify the required and optional information found on food labels. Specify two major factors that affect cost, quality, availability, or variety of food in the marketplace.	*Students will:* Evaluate nutrition claims made in the merchandising and advertising of food. Use nutritional labels to compare the nutritional value of foods. Identify two criteria for evaluating the validity of nutrition information. Identify two ways the consumer can decrease the food budget without sacrificing the nutritional quality of the diet. Identify responsibilities of local, state, and federal agencies in determining requirements for school food service programs.
Identify two factors which affect the yield and quality of food crops. Identify two ways to prevent food-borne illnesses. Identify two ways of food preparation which maximize nutrient retention.	Identify two organisms that may cause food-borne illness and two foods that are particulary susceptible to such organisms. Identify three ways of cooking food to maximize nutrient retention. Identify three methods of preserving food at home. Recognize one local, one state, and one federal governmental agency responsible for food sanitation and safety enforcement.	Identify one reason for the use of pesticides and one reason against the use of pesticides. Identify reasons for two sanitation precautions that should be followed by food service personnel. Specify one advantage and disadvantage of food processing.

Appendix E

Dietary Guidelines for Americans

What should you eat to stay healthy?*

Hardly a day goes by without someone trying to answer that question. Newspapers, magazines, books, radio, and television give us a lot of advice about what foods we should or should not eat. Unfortunately, much of this advice is confusing.

Some of this confusion exists because we do not know enough about nutrition to identify an ideal diet for each individual. People differ and their food needs vary, depending on their age, sex, body size, physical activity, and other conditions such as pregnancy or illness.

But today, what advice should you follow in choosing and preparing the best foods for you and your family?

The guidelines below are suggested for most Americans. They do not apply to people who need special diets because of diseases or conditions that interfere with normal nutrition. These people may require special instruction from trained dietitians in consultation with their own physicians. The following dietary guidelines are recommended to maintain one's health and well-being:

- Eat a variety of foods.
- Maintain ideal weight.
- Avoid too much total fat, saturated fat, and cholesterol.
- Eat foods with adequate starch and fiber.
- Avoid too much sugar.
- Avoid too much sodium.
- Be moderate if you drink alcohol.

The guidelines help us make informed choices about our food. The object is to get the right balance of vitamins, minerals, and fiber without overdoing the salt or the calories, especially the calories from fat and sugar.

These guidelines are intended for people who are already healthy. No guidelines can guarantee a person's health or well-being. An individual's health depends on many things, including heredity, life-style, personality traits, mental health, and attitudes and environment, in addition to diet.

Food alone cannot make you healthy. But good eating habits based on moderation and variety can help keep you healthy and even improve your health.

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*Adapted from: *Nutrition and Your Health: Dietary Guidelines for Americans.* Home and Garden Bulletin No. 232. Washington, D.C.: U.S. Department of Agriculture and U.S. Department of Health and Human Services, 1980.

Eat a Variety of Foods

You can get the vitamins and minerals you need for good health with a variety of foods. Choosing a wide selection of fruits, vegetables, whole grain and enriched breads and cereals, dairy products, legumes, meat, fish, and poultry products will do the job.

Adding variety to our diets is not hard. Most of us vary the way we eat from day to day. It is a good idea nutritionally. If you pick different foods from within each group of foods, you increase the range of nutrients in your diet. Over a period of days, you should come out about right.

To increase the variety of foods:

- Provide more servings of fruits and vegetables.
- Frequently include dark green vegetables, citrus fruits, dry bean and pea dishes, and starchy vegetables.
- Serve more grain products, especially whole grains.

Maintain Ideal Weight

If you need to lose weight, do so gradually. Steady loss of one to two pounds a week until you reach your goal is a relatively safe approach and more likely to be maintained.

If you want to lose weight:

- Start by cutting back on fats and sugars.
- Cut back on serving sizes.
- Eat slowly and limit second helpings.
- Increase your physical activity.

Avoid Too Much Total Fat, Saturated Fat, and Cholesterol

Several factors have been linked to heart disease. Among them are high levels of blood cholesterol. high blood pressure, diabetes, a history of heart disease in the family, and obesity. Many scientists believe that certain habits and characteristics raise the risk of heart disease. These behaviors include smoking, reaction to stress, physical inactivity, and increased consumption of fats, saturated fat, cholesterol, and sodium.

There is debate about whether it is wise to make a general recommendation that people should reduce their dietary fat and cholesterol. Many scientists believe that it is sensible to consume only moderate amounts of fat, saturated fat, and cholesterol. They also believe that this moderation poses no known health risk and may reduce a person's risk of heart disease.

To lower the amount of fat, saturated fat, and cholesterol in your diet:

- Select lean hamburger and lean roasts, chops, and steaks trimmed of visible fat.
- Choose more fish and poultry.
- Drain meat drippings.
- Limit the amount of margarine or other fats used on bread and vegetables.
- Emphasize low-fat and skim milk and other low-fat dairy products, and reduce the amount of fat in other foods when whole milk or cheese is used.
- Cut down the amount of fat used in recipes added to foods in cooking or added at the table.
- Broil, bake, steam, or boil foods rather than frying them; especially limit breaded or batter-fried foods.
- Avoid excessive intake of egg yolks.
- Use fewer creamed foods and rich desserts.
- Watch the amount of salad dressing used.
- Experiment with meatless meals by using dried beans, peas, tofu, and other bean products.

Eat Foods with Adequate Amounts of Starch and Fiber

To have enough starch and fiber in your diet:

- Select more vegetables and fruits.
- Include potatoes, sweet potatoes, yams, corn, peas, and dried beans more often.
- Emphasize whole grain cereal products such as brown rice, oatmeal, and whole wheat cereals and breads.

When you make these changes, it may seem that you are eating more food than you are used to eating. Because you are cutting down on the concentrated calories from fats and sweets and adding more servings of fruits, vegetables, and whole grains, your diet is bulkier. There are more calories, but the volume is larger. Nutritionally, this increase is an advantage. You are getting more nutrients and fiber for your calories. Since the bulkier diet makes you feel full, it may help curb your appetite. Even so, this diet may take some getting used to.

People who count calories often will not touch starchy foods like potatoes, breads, and grains. They think starches are fattening. Actually, starches are no more fattening than any other food. The question is how much you eat and how much fat or sugar and other sweeteners you add to the starches. Fats have more than two times the calories of starch. Sugar has no more calories than starch, but sugary foods add little more than calories to your diet.

Avoid Too Much Sugar

We get most of our added sugar from soft drinks, candy, and desserts, not from the sugar bowl. To avoid excessive sugars:

- Use less of all sugars, including white sugar, brown sugar, raw sugar, honey, and syrups.
- Eat less of foods containing these sugars, such as candy, soft drinks, ice cream, cakes, cookies, jams, jellies, and syrup.
- Select fresh fruits or fruits canned without sugar or in light syrup or juice pack rather than heavy syrup.
- Reduce the amount of sugar in recipes for baked goods and desserts.
- Read food labels for clues on sugar content. If the names sucrose, glucose, maltose, dextrose, lactose, fructose, corn syrups, honey, or corn sweeteners appear first, then there is a large amount of sugar.
- Remember, how often you eat sugar is as important as how much sugar you eat.

Avoid Too Much Sodium and Salt

Sodium is a component of salt. Aside from the salt we add in cooking and at the table, much of the sodium we consume comes from the salt and other sodium compounds in commercially prepared foods. So choose carefully when you are eating out. When you shop, read the label. Avoid obviously salty foods. Keep the salt shaker off the table. Your appetite for salty foods may be curbed if you make an effort to break the salt habit.

To limit the amount of sodium and salt:

- Learn to enjoy the unsalted flavors of foods.
- Cook with only small amounts of added salt.
- Add little or no salt to food at the table.
- Limit the use of salty processed foods such as luncheon meats and frankfurters.
- Avoid excessive use of commercially prepared soups, sauces, and condiments which contain sodium. These include soy sauce, pickles, relishes, bouillon cubes, meat tenderizer, monosodium glutamate, gravy mixes, canned soups, and seasoned salts such as garlic salt or celery salt.
- Use more fresh and frozen vegetables than canned or seasoned frozen vegetables which have salt added.
- Limit the use of salty snack foods such as chips, pretzels, and crackers.

Appendix F

Food Group Guide

Food Group	Nutrient Provided	Foods Included	Amounts Recommended
Milk and Cheese	Protein, calcium, riboflavin and, if fortified, vitamins A and D	Milk: fluid whole, evaporated, skim, dry, buttermilk Cheese: cottage, cream, cheddar-type, natural or process Ice cream, ice milk Yogurt	Some milk every day for everyone is recommended. Below are recommended amounts of 8-ounce (240 mL) cups of fluid milk: Children under nine: 2 to 3 (480 mL to 720 mL) Children nine to twelve: 3 or more (720 mL or more) Teenagers: 4 or more (960 mL or more) Adults: 2 or more (480 mL or more) Pregnant women: 3 or more (720 mL or more) Nursing mothers: 4 or more (960 mL or more) Part or all of the milk may be fluid skim milk, buttermilk, evaporated milk, or dry milk. Cheese, ice cream, and yogurt may replace part of the milk. One-inch (2.54 cm) cube cheddar-type cheese is equal to ½ cup (120 mL) milk. ½ cup (114 g) cottage cheese is equal to ⅓ cup (80 mL) milk. 2 tablespoons cream cheese is equal to 1 tablespoon (15 mL) milk. ½ cup (65 g) ice cream or ice milk is equal to ⅓ cup (80 mL) milk. 1 cup (240 mL) yogurt is equal to 1 cup (240 mL) milk.
Meat, Poultry, Fish, and Beans	Protein, iron, and the B vitamins	Beef, veal, lamb, pork, variety meats, such as liver, heart, kidney Poultry and eggs Fish and shellfish As alternates—dry beans, dry peas, lentils, nuts, peanuts, peanut butter	Two or more servings Count as a serving: 2 to 3 ounces (57 g to 84 g) (not including bone weight) cooked lean meat, poultry, or fish. Count as alternates for ½ serving meat or fish: 1 egg, ½ cup (90 g) cooked dry beans, dry peas, or lentils, or 2 tablespoons (32 g) peanut butter.

Food Group	Nutrient Provided	Foods Included	Amounts Recommended
Fruit/Vegetable	Vitamins A and C	All vegetables and fruits Sources of vitamin C: Grapefruit or grapefruit juice, orange or orange juice, cantaloupe, guava, mango, papaya, raw strawberries, broccoli, brussels sprouts, green pepper, sweet red pepper Sources of vitamin A: Dark green and deep yellow vegetables and a few fruits; examples are apricots, broccoli, cantaloupe, carrots, chard, collards, cress, kale, mango, persimmon, pumpkin, spinach, sweet potatoes, turnip greens, and other dark green leafy vegetables, winter squash.	Four or more servings, including: One serving every day of a good source of vitamin C One serving at least every other day of a good source of vitamin A
Bread and Cereal	Carbohydrates, protein, iron, and B vitamins	All breads and cereals that are whole grain, enriched, or restored; check labels to be sure. Specifically, this group includes breads, cooked cereals, ready-to-eat cereals, cornmeal, crackers, flour, grits, macaroni and spaghetti, noodles, rice, rolled oats, and quick breads, and other baked goods if made with whole grain or enriched flour. Bulgur and parboiled rice and wheat also are included in this group.	Four or more servings Count as one serving: 1 slice of bread; 1 ounce (28 g) ready-to-eat cereal; ½ to ¾ cup (80 g—120 g) cooked cereal, cornmeal, grits, macaroni, noodles, rice, or spaghetti.

What About Fats and Sweets?

In general the amount of these foods to use depends on the number of calories you require. It is a good idea to concentrate first on the calorie-plus-nutrients foods included in the four food groups previously listed as the basis of your daily diet. Foods containing mainly fats and sweets are called empty calorie foods because they are usually high in calories but low in vitamins, minerals, or protein. This group includes candy, sugar, jams, jellies, syrups, sweet toppings, and other sweets, soft drinks, and other highly sugared beverages. Also included are pastries and unenriched flour products. An ounce of fat has more than twice the number of calories as protein, starches, or sugars. Fats include butter, margarine, mayonnaise, some gravies, and salad dressings.

Appendix G

You and Nutrients

More than 50 different kinds of nutrients exist. All of them are important in helping your body grow, repair cells, and generally stay healthy. Luckily, you do not have to try to remember the names of these nutrients, because nutrition experts have put all nutrients into *six basic groups:* carbohydrates, proteins, fats, vitamins, minerals, and water. A closer look at the six groups of nutrients will show you how all of them work to keep you going.

Carbohydrates: Essential for Energy

What kind of food do you think of when you hear the word *carbohydrate?* If you are like most people, you probably think of corn on the cob, baked potatoes, spaghetti, or breads. And you are right. But what about celery or a peach or table sugar? Did you know that these foods are also made of carbohydrates?

There are three different kinds of carbohydrates:

- Sugars are called simple carbohydrates. They are found naturally in foods like fruit and milk and in some vegetables like beets and peas. Refined sugars from sugar cane and sugar beets are added to foods like candy, soda, cakes, and ice cream.
- Starches, which are one type of the complex carbohydrates, are found in foods like bread, potatoes, rice, and vegetables.
- Fiber, which is also a complex carbohydrate, is found in the walls of plant cells, the tough structural parts of plants. Examples are the stringy part of celery or the bran of wheat and other cereals. Although humans cannot digest fiber, it plays an important role in keeping them healthy. It helps move foods through the body and helps the body get rid of wastes left over from digestion.

Of the three kinds of carbohydrates, starches have been the main part of people's diets from early human history until the present. In Asia, for example, rice is the main part of every meal.

Carbohydrates are your main source of energy. The starches and sugars you eat are changed to *glucose.* Just as gasoline provides fuel for your car, glucose provides fuel for your cells. This fuel burns in the cell, producing energy and heat. That's one reason why your body temperature is normally 98.6° Fahrenheit (37° C). The cells use energy to repair themselves, make new cells, and carry out their work.

Whenever you eat more carbohydrates than your body needs, two things happen: the first is that a little of the extra glucose is changed into another substance called *glycogen.* Your body stores the glycogen for times when you need extra energy, such as when you race your brother to the corner grocery store. When you need extra energy, your body changes the glycogen back into glucose, which is sent to the cells to be used for energy. (You have only about one pound of glycogen in storage at any one time.) The second thing that happens is that most of the extra glucose from the food you eat is changed into fat, which your body stores almost everywhere. When you really need fat, the body can change it back into energy. Most of us get enough food energy, and having a lot of extra fat is not too healthful.

Protein: Your Body's Building Blocks

Nearly everything in your body is made up of *protein,* including your hair, bones, muscles, teeth, and even your brain. The protein you eat is broken down and built up into all these parts of your body. You need protein to build cells and to repair them. As much as 3 to 5 percent of the protein in your body is replaced each day. For example, red blood cells live only for about 120 days, and the cells in the lining of your small intestine get worn out in a few days and have to be replaced.

There are certain times of life when you need extra protein; for example, when you are growing or when you are recovering from injury. When you get older and when your growth slows, you will need less protein.

What foods have protein? Most people think first of meat, fish, and chicken. But milk, nuts, cheese, peanut butter, eggs, beans, and grains also have protein.

Completing the Protein Picture. Proteins are not all alike. They vary in the number of building blocks your cells can use. Therefore, you should eat a variety of protein foods to keep your cells growing and working right.

Most people in the world get their proteins from two or more sources. Mexican people, for example, eat beans and corn meal tortillas; Chinese people eat soybean cakes and rice; Arabic people eat chick peas and cracked wheat. You eat cereal and milk, for example, or macaroni and cheese. These foods not only taste good, but they work together for you in your body.

Building Muscles. Your muscles are made of protein. But you will not build stronger or bigger muscles just by eating foods higher in protein. In fact, if you eat a lot of extra protein without exercising, the protein will be turned into fat. Exercise and food together build muscles.

Fat: Your Body's Most Compact Source of Energy

Fat is the most compact source of energy. One way we measure energy is by the number of calories. An ounce (28 g) of fat, for instance, has more than twice the number of calories as an ounce of either protein or carbohydrate.

Fat does more than provide calories. It carries four important vitamins, called fat-soluble vitamins, throughout your body. (You will read more about these vitamins later.) Fat also protects your body's organs by providing padding.

But many scientists think that Americans eat too much fat. This practice can cause health problems.

First, fat is fattening. If you eat a lot of fatty foods like potato chips, french fries, fatty meats, frosted cakes, and butter or margarine, you may be getting more calories than you need for energy. As a result, you become fat.

Second, scientists think that eating too much fat over a lifetime is linked to some serious diseases that you may get as you grow older, such as heart disease, strokes, and some kinds of cancer. Maybe you know someone who has these illnesses.

Fat is found in such foods as whole milk, cream, cheese, nuts and seeds, and meats. Fat is also found in vegetable oils, butter, margarine, mayonnaise, bacon, avocados, and olives. Fat is often added to foods; for example, during the preparation of cakes, fried foods, cookies, some candies, frosting, gravies, sauces, and salad dressings.

Vitamins: Necessary for Good Health

Vitamins are important chemicals. They do not provide energy, but they are needed in the right amounts for the cells to do their work.

Some vitamins help to make blood cells, hormones, and the regulating substances that are needed all the time. Other vitamins help the body to use other nutrients. Most people who eat a variety of food get all the vitamins they need from what they eat.

There are about 13 vitamins that are absolutely necessary for good health. Four are called fat-soluble vitamins because they dissolve in fat. These are vitamins A, D, E, and K. They are digested and absorbed with the help of fats from the diet. These vitamins can be stored in the body for long periods of time, mostly in fatty tissue and in the liver.

The nine other vitamins are called water-soluble vitamins. They include eight B vitamins and vitamin C. These vitamins are not stored in your body very long; therefore, you need to eat foods that are good sources of these vitamins every day.

A closer look at vitamins will show why they are needed and where you get them:

- Vitamin A. This vitamin is needed for good vision, healthy skin, strong bones, and wound healing. It is found in yellow, orange, and green vegetables, in yellow fruits, and in the fat of animal products like fish, milk, eggs, and liver.
- B vitamins. These vitamins are needed to release the energy in food; to maintain healthy eyes, skin, and mouth; and to keep the nervous and digestive systems working properly. They are found in many foods such as whole grain and enriched cereals and breads, meats, and beans.
- Vitamin C. This vitamin is needed for healing wounds; for the development of blood vessels, bones, teeth, and other tissues; and for minerals to be used by the body. It is found in food like citrus fruits, melons, berries, leafy green vegetables, broccoli, cabbage, and spinach.
- Vitamin D. This vitamin is needed for using calcium and phosphorus to build strong bones and teeth. When exposed to sunlight, the skin produces this vitamin. It is found in fatty fish, liver, eggs, and butter, and it is added to most milk.
- Vitamin E. This vitamin helps preserve the cell tissues. It is found in a wide variety of foods, and most people get enough. Vegetable oils and whole grain cereals are especially rich sources.
- Vitamin K. This vitamin is needed for normal blood clotting. It is found in dark green leafy vegetables, peas, cauliflower, and whole grains. It is also made in our bodies.

Minerals: Essential for Teeth, Bones, and Health

Minerals are essential to your health, even though you need only small amounts of each kind. The essential minerals can be divided into four groups:

- Minerals which are part of the bones are calcium, phosphorus, magnesium, and fluorine.
- Minerals that regulate body fluids are sodium, potassium, and chlorine.
- Minerals that are necessary to make special materials the cells need to do their work are iron and iodine.
- Minerals that are needed in tiny amounts are called trace elements. They trigger chemical reactions in the body that are essential for good health.

Information about what these minerals do and where they may be found is presented as follows:

Minerals That Strengthen Bones. Minerals essential for strong bones are calcium, magnesium, phosphorus, and fluorine.

- Calcium is the mineral we need the most. It makes bones and teeth strong and sturdy and is found in milk products.

- Phosphorus works with calcium in making bones and teeth. Phosphorus is very plentiful in a typical American diet. Phosphorus is found in meats, fish, poultry, eggs, cheese, milk, legumes, and whole grains.
- Magnesium helps bones and muscles do their work and helps turn food into energy. It also helps the body use certain vitamins. This mineral is found in nuts, seeds, dark green vegetables, and whole grain products.
- Fluorine, which is also important for strong bones and teeth, helps prevent cavities. It is found in seafood and in some plants. Many of us get our supply from the fluorine added to drinking water.

Minerals That Regulate Fluids. These minerals include sodium, potassium, and chlorine. More than half of your body is water. These minerals help keep the right amounts of water inside the cells—while keeping the rest out. Most of the sodium and chlorine in the diet is added to foods like table salt. Potassium is found in many foods. Good sources include foods such as oranges, bananas, cantaloupe, dark green leafy vegetables, and meats.

Minerals That Make Materials. Minerals that make materials include iron and iodine. Iron carries oxygen in your blood. The best sources of iron are meats (especially liver). But foods from some plants—like beans, green leafy vegetables, and grains—are good sources of iron, especially when eaten along with foods rich in vitamin C. An example is drinking some orange juice with your whole wheat toast in the morning. The vitamin C helps your body absorb iron better.

Iodine is needed to make a hormone produced by the thyroid gland, which controls growth. Many years ago people worried about getting a disease called goiter because they did not get enough iodine. Because iodine is now added to salt, people are less concerned about getting this disease.

Trace Elements. Trace elements are minerals that are needed in very small amounts. There are many trace elements. Zinc and copper are two examples. Zinc helps you grow, taste, and make proteins, and it helps wounds to heal. Zinc is found in whole grain bread and cereals, beans, meats, shellfish, eggs, and in many more foods. The second example, copper, along with iron, is important for healthy red blood cells. It also helps build muscles. Good sources are fish and meats, as well as nuts, raisins, oils, and grains.

Water: Essential for Life

You probably did not realize that *water* is a nutrient. It is the most important nutrient of all. You can survive for weeks without a single bite of food, but you can live for only a few days without water.

Your body is more than half water. Your blood, for instance, is 90 percent water, and your brain is 75 percent water. *Every* one of your cells contains water. It carries nutrients to your cells and carries wastes away. It keeps your body at just the right temperature.

You lose about 2½ quarts (2.4 litres) of water a day. Some is lost as urine, some as perspiration, some when you breathe. (Did you ever notice the moisture on your glasses when you blew on them to clean them?)

But water is usually easy to replace. Water comes as a by-product of the cell's work inside your body. Water also comes in all the foods you eat.

Can you think of foods that contain a lot of water? You probably guessed tomatoes, oranges, and watermelon. But do you know that bread is more than one-third water and that meat is more than half water? And, of course, milk and juice are nearly all water (plus nutrients and natural flavorings).

Conclusion

You now should know more about the nutrients you need: carbohydrates, protein, fats, vitamins, minerals, and water. They come from the food you eat, and they make you what you are.

Appendix H

Youth Advisory Council

What Is a YAC?

A youth advisory council (YAC) is an organization composed of students who have an interest in learning about the school food service program, health, and nutrition.

The youth advisory council was started by the American School Food Service Association to encourage student involvement in the school lunch program. The U.S. Department of Agriculture supports the establishment of youth advisory councils for meeting the new regulation that mandates the involvement of students in the school food service program.

Youth advisory councils are an excellent means for discovering student reactions to the food served in the cafeteria as well as their ideas and opinions on school food service. After all, students are the customers who support the school meal program.

Steps to Start a YAC

This section contains information about the steps to be followed for organizing a YAC and then for continuing its activities.

Create an Organization

1. First, inform the following groups about the YAC program, using the organizational packet:
   a. All cafeteria managers
   b. All principals
2. Then, the cafeteria manager at each school should organize a meeting to include the school principal or vice-principal, the director of activities, interested teachers, school nurse, school food service representative, and any interested students. The following points should be covered at this meeting:
   a. Discuss whether or not the cafeteria manager has the time to act as the major YAC adult leader. If he or she is unable to find time to meet with YAC students regularly, ask for support from a teacher or other staff members who can be responsible for keeping the YAC active.
   b. Have the group discuss the best method for recruiting interested students for the youth advisory council.

   One suggested method for reaching the student body is to include announcements in the daily school bulletin and in assembly announcements. Suggested announcements may include the following:

   How many of you eat school lunch? How would you like to become involved in the cafeteria's policies and the food served? If you are interested, come to the first youth advisory council (YAC) meeting on (date), in room (number) at (time), or sign up with the activities director or cafeteria manager as soon as possible.

   What is a YAC? YACs, or youth advisory councils, are made up of students who are interested in health, nutrition, and food service. They have something to say about the school lunch and the cafeteria, and they promote good nutrition in their school. Learn more about YAC's today in room (number) at (time).

   After a satisfactory number of students (five to 15) have been recruited, the cafeteria manager or adult leader should arrange the first YAC meeting.

   Include all interested students, faculty, and school food service administrative personnel.

Plan Meetings

1. First meeting—Provide information.
   a. Inform the students about the YACs, using materials from American School Food Service Association (ASFSA) and the Florida Department of Citrus (see page H-4 for resource materials).
   b. Obtain a list of students' names and telephone numbers. This procedure should be continued at each meeting thereafter.

   c. Establish regular meeting times. Suggested times include: (1) early in the morning before school; (2) during the student government period; (3) immediately after lunch; and (4) after school.

2. Second meeting—Organize the students.
   a. Discuss the constitution (see below).
   b. Elect officers.
   c. Discuss methods for administering the survey to the student body in preparation for the third meeting in which the council will identify its concerns.
3. Third meeting—Develop a survey.
   Develop and administer a survey (See sample survey on page H-3.) to help identify concerns of the student body on food service and nutrition.
4. Fourth meeting—Identify concerns.
   Tabulate the results of the survey and establish target areas of need based on the results of the survey.
5. Fifth meeting—Plan for action.
   Plan for activities to meet the target areas.

Act on Plans Made

It may be helpful to establish a time line for activities to help ensure that your activity goals are met.

Evaluate Progress

Near the end of the year, the council members should design a progress evaluation based on the sample on pages H-5 and H-6. Each council's evaluation should deal with only the areas of concern that the members have chosen to act on.

Food Services Youth Advisory Council Constitution Guidelines

ARTICLE I. Name and purpose

1. This organization shall be known as the (school name) Youth Advisory Council (referred to as YAC in the remainder of these guidelines).
2. The purpose of this organization is as follows:
   a. To serve as a communications bridge between students, school food service programs, school faculty, administrators, and the community
   b. To familiarize the student body with the National School Lunch Program
   c. To improve all aspects of the school breakfast and lunch programs
   d. To develop a way to make fellow students aware of the importance that good nutritional habits can play in one's life
   e. To advance the ideals of YACs through the school district, state, and nation

ARTICLE II. Membership

This organization will be composed of all students at (school name) who have a common interest in the school food service program.

ARTICLE III. Officers

1. The officers of the YAC shall be chairperson, cochairperson, secretary, and/or treasurer.
2. There will also be a representative to the district youth advisory council.

ARTICLE IV. Duties of Officers and Members

1. The chairperson/cochairperson shall organize and preside at all YAC meetings.
2. The secretary/treasurer shall keep a record of all activities at the council meetings.
3. Other officers and members shall peform duties as established by each school YAC, according to individual council needs.
4. The representative to the student body government shall represent the YAC in the student government meetings and present any pertinent YAC business to the student government.
5. The representative to the district YAC shall represent the school YAC at the district youth advisory council meetings.

ARTICLE V. Meetings

Meetings will be held on a regular basis as determined by the school YAC.

ARTICLE VI. Sponsor

An adult sponsor shall act as an adviser to the YAC.

ARTICLE VII. Guidelines and Amendments

1. Guidelines fo the school YAC shall be drawn up according to the needs of the individual council.
2. Amendments to the YAC constitution shall be made according to the needs of the individual school and approved by the students, faculty adviser, and the school food service manager.

ARTICLE VIII. Source of Authority

All powers of the YAC are delegated to it by those directly concerned with the management of school food services. Therefore, all proposals will be subject to approval by the food service director.

Youth Advisory Council Activities

YAC activities are concerned with the following aspects of food service:

Cafeteria Environment

1. Work with the art department to design and prepare colorful bulletin boards or displays on the cafeteria walls.
2. Work with the school administration to obtain colorful tables and chairs.
3. Organize interesting, informative noon assemblies in the cafeteria.
4. Develop and display posters on decreasing noise and litter in the cafeteria.
5. Brainstorm with the cafeteria manager on more efficient or comfortable ways to arrange the cafeteria.
6. Develop a clean table award.
7. Visit other schools for ideas.

Meal Service

1. Brainstorm on ideas for speeding up the lunch line.
2. Work with the food service department to select colorful serving dishes and utensils.

Survey of Youth Advisory Council Activities

Survey:

School: ____________________ Boy: ____ Girl: ______ Date: ____________________

Grade: ____________________

The purpose of this survey is to assist the youth advisory council (YAC) at the school in identifying student ideas and concerns about school food service and nutrition.

	Yes	No
Cafeteria Environment		
1. Is it too noisy in the cafeteria?	____	____
2. Do you enjoy the atmosphere of the cafeteria?	____	____
3. Do you like the organization of the cafeteria?	____	____
4. Are the tables and chairs comfortable?	____	____
Meal Service		
1. Is the service of meals fast enough?	____	____
2. Do you have enough time to eat?	____	____
3. Are the meals served attractively?	____	____
4. Are the cashiers and other food service workers pleasant?	____	____
5. Are eating utensils easy to use?	____	____
Cafeteria Food		
1. Does the cafeteria food appeal to you?	____	____
2. Do you like the taste of cafeteria meals?	____	____
3. Are the hot foods hot enough?	____	____
4. Are the cold foods cold enough?	____	____
Nutritional Needs		
1. Are you concerned about your health and nutrition when you select foods?	____	____
2. Do you feel you have adequate nutritional knowledge?	____	____
3. Do you eat breakfast before coming to school?	____	____
4. Would you eat the breakfast offered at school?	____	____
5. Do you feel that the school lunch is nutritious?	____	____
6. Do you eat the school lunch regularly?	____	____
Food Service Administration		
1. Do you feel that the cost of cafeteria food is fair in relation to the amount of food you get?	____	____
2. Do you feel that the menus have enough variety?	____	____

Comments are welcome: ____

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Youth Advisory Council
Resource List

Medium	Resource	Source	Cost
Slide script presentation	1. YAC Slide Show: How a high school in Florida organized a Youth Advisory Council	Florida Department of Citrus Virginia "Ginny" Lindstrom Nutrition Consultant 2128-B Galveston Avenue San Jose, CA 95122 (408) 292-2054	Free on loan
Filmstrip/cassette	1. Exeter Story: In-service training materials for adults, and 4 filmstrips/cassettes	Nutrition Know-How 48075 Colony Farm Circle Plymouth, MI 48170 (313) 455-0530	$89/each set
	2. Lunchroom Learning: Adult in-service training focusing on student activities with school food service, and 4 filmstrips/cassettes	Same as above	Same as above
Informational packet	1. ASFSA Starter Folder	American School Food Service Association 4101 East Iliff Avenue Denver, CO 80222 (303) 757-8555 (800) 525-8575	First folder free; additional copies $1
	2. The YAC "How to" kit of materials	Florida Department of Citrus Virginia "Ginny" Lindstrom Nutrition Consultant 2128-B Galveston Avenue San Jose, CA 95122 (408) 292-2054	Free
Activity packet	1. Florida O.J. Carnival 2. Florida O.J. Nutrition Fair 3. Florida O.J. Sports Spectacular	Florida Department of Citrus Virginia "Ginny" Lindstrom Nutrition Consultant 2128-B Galveston Avenue San Jose, CA 95122 (408) 292-2054	Free
Brochures	1. "Get on the Right Track with YAC," San Juan Unified School District	American School Food Service Association 4101 East Iliff Avenue Denver, CO 80222 (303) 757-8555 (800) 525-8575	Free

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3. Promote days using special themes and menus; for example, Italian Day, Athletes' Day, Seniors' Day, Energy Saving Day, and Low-Cal Day.

Cafeteria Food

1. Promote menu items that are available but that the students may not know about, such as fruit, yogurt, and special salads.
2. Have an advisory group work with the person who plans menus.
3. Conduct taste tests on new menu items.
4. Work with the cafeteria and food services to offer low calorie entrees.
5. Visit other schools for ideas.

Nutritional Needs

1. Display nutrition posters around the school.
2. Inform the student body of the benefits of school lunch through an assembly using a filmstrip or skit.
3. Post the calorie contents for each menu item offered.
4. Work with the cafeteria and food services to offer low-calorie entrees.
5. Invite special speakers that are qualified nutritionists to speak to the student body.
6. Organize a school or districtwide nutrition fair.

Food Service Administration

1. Have district office staff discuss the cost of the school lunch and factors that are considered when determining cost.
2. Using members of YAC, form an advisory committee to discuss ideas and suggestions made by YACs with the food service department.
3. Have the nutritionist or food service director discuss how menus are planned, using surplus commodities to promote an understanding of why some items are included on the menu.
4. Set up informational bulletin boards on youth advisory councils.
5. Work with the local or state chapter of the California School Food Service Association (CSFSA) to assist in planning a regional or statewide conference.
6. Promote school lunch, having members of the YAC attend the school's PTA meeting and discuss benefits of school lunch.

YAC Fund-Raising

The youth advisory council may sponsor fund-raisers such as the following:

1. Refreshment concessions at athletic events and special functions
2. Car washes
3. Spaghetti feeds
4. Pizza sale (take orders, make pizza, deliver to door)
5. Submarine sandwich sale (take orders, make sandwiches, deliver to customer)

The following groups may be able to offer financial assistance to the YAC:

1. Student council or student government
2. Local CSFSA chapter
3. Local school district food service department

YAC Progress Evaluation

School: ______________________ Boy: _____ Girl: _____ Date: ______________________

Grade: ______________________

The purpose of this evaluation is to assist the youth advisory council (YAC) in identifying the council's effect on the school food service program and the student body's nutritional concerns.

	Yes	No
1. Do you feel that the cafeteria environment has improved over the past school year?	_____	_____
2. Do you feel that the meal service has improved in the past school year?	_____	_____
3. Do you feel that food offered in the cafeteria has improved over the past school year?	_____	_____
4. Do you feel that you have a better understanding of nutrition and how it relates to the school lunch and breakfast programs?	_____	_____
5. Do you feel that you are more aware of how the school lunch program operates?	_____	_____

Additional comments are welcome: ____

____

Miscellaneous media, such as nutrition posters, brochures, and other information, are available from the following sources:

1. California School Food Service Association SAC/YAC Chairperson, P.O. Box 74188, Los Angeles, CA 90064, (213) 463-0252
2. USDA Food and Nutrition Service, 550 Kearny Street, San Francisco, CA (415) 556-4951
3. The local home economist, University of California Cooperative Extension
4. Industry—Project SMILE (School Meals for Learning and Education), Nancy Thomas, Vice-President, Creative Stuff-Public Relations, 5142 Warner Avenue, Suite 201, Huntington Beach, CA 92649, (714) 840-1341
5. Center for Science in the Public Interest, 1757 S. Street N.W., Washington, DC 20009

School Lunch Survey Sample

1. How often do you eat a school-prepared lunch?
   ☐ Never ☐ 1 to 2 times per week ☐ 3 to 4 times per week ☐ Every day
2. How would you rate the quality of the food served in the cafeteria; that is, does it taste good; does it look good?
   ☐ Needs improvement ☐ Fair ☐ Great
3. Do you feel that there is enough variety in the foods offered in the cafeteria?
   ☐ Yes ☐ No
   Suggestions for a new food: ______________________________
4. Do you feel that the lunchroom is a pleasant place in which to eat?
   ☐ Yes ☐ No ☐ Sometimes
5. Check the following for suggestions for improving the lunch area:
   ☐ Cafeteria cleanliness patrol ☐ Cheer up the cafeteria manager
   ☐ Colorful murals or paintings ☐ Other: ____________________
6. Would you be interested in being a member of an advisory council to school food service?
   ☐ Yes ☐ No
   Grade level: ____________ Name: ______________________________

Appendix I

Food-Related Career Opportunities

Numerous food-related job opportunities are available to people looking for satisfying and rewarding careers.[1] People with all levels of education and training can find their niche in a food-related career. Whether you enjoy working with people or prefer solitude and the outdoors, there may be a food-related career just for you.

This lesson will briefly acquaint you with some career opportunities in the area of consumer food advocacy, food services, and agriculture.

Consumer Food Advocacy

The consumer food advocate represents the consumer's viewpoint in food-related issues. The activities of the advocate may include warning the consumer about harmful foods, speaking at public hearings regarding food policy changes, and representing the consumer during food-related legislative proceedings. These meetings, conducted by state and federal legislative committees, give concerned persons an opportunity to present their viewpoints concerning various issues. Consumer food advocates have represented citizens on issues such as increasing the food stamp allowances when food prices go up. The ultimate goal of the consumer food advocate is to educate and inform the public about food-related topics.

An example of a food advocate organization is the Food Law Center in San Francisco, California. One of the group's activities is to lobby in support of food-related legislation that benefits low-income consumers.

The American Dietetic Association (ADA) encourages its members to become active consumer advocates. The ADA feels that the professional nutritionist can give expert assistance in researching, defining, and arguing food-related issues.

Issues that consumer food advocates have been involved in include continuation of feeding programs, support of the food stamp program, and the addition of easy-to-use nutrition labeling on food products.

Food Service Careers

With the American public eating increasingly more meals outside the home, there has been a rapid expansion in the food service industry. This expansion is providing numerous job opportunities in this field.

The food service industry is divided into two major areas: institutional food service and restaurant food service. Institutional food services usually provide food for specific groups of people, such as school students, hospital patients, and airline passengers. Restaurant food services prepare food for the general public. Examples of these services include snack bars, delicatessens, fast-food establishments, coffee shops, and ice cream shops.

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[1] This activity was developed by the Nutrition Education Program, Rowland Unified School District.

Job opportunities in both areas of food services are similar. Food service jobs usually include waiters and waitresses, cooks, kitchen managers, and food service directors. Many dietitians also work in this industry.

The amount of education required for employment in the food service industry varies according to the duties and responsibilities of the job. The chart of "Job Opportunities in Food Services" lists some of the jobs available. Compare the responsibilities of each job with the education and experience required for that position. Do you see a job in which you are interested?

Agriculture

Agriculture offers many food-related job opportunities. In 1976 the U.S. Department of Labor reported that 4 percent of all employed persons worked in a division of agriculture. This field basically involves the cultivation of crops and the raising of livestock for food. With increasing technical advancements, agriculture has become a complex science and has expanded to include agribusiness and other agricultural support services, as explained next.

The duties of the farm operator vary according to the type of farm and its size. The crop farm operator plans the kind of crops to be grown, tills the soil, plants the seeds, fertilizes the new plants, cultivates the soil, and harvests the products. The livestock farm operator's responsibilities differ slightly. This farmer must feed and care for the animals and see that the barn, pens, and other buildings are kept clean. Many farmers have a combined operation and raise both crops and livestock.

In addition to routine farming duties, the farm operators must be managers. Examples of management duties include deciding when to plant crops or buy livestock, paying bills, securing loans to make large purchases, and supervising farm help.

Very few farm operators can run a farm alone, so they hire farm laborers. These people help with plowing, fertilizing, weeding, harvesting, and packaging the product. Livestock farm laborers mix feed and then feed and water the animals, clean the barns, watch for health problems, and some even vaccinate the animals. Dairy farm laborers must also clean and milk the cows twice a day.

Prospective farmers require some training. Many farmers receive their training in youth organizations such as Future Farmers of America or 4-H clubs. Some future farmers receive their training at home on the family farm. Others receive two- or four-year degrees at a college or university offering agriculture courses. Many successful farmers have taken courses in business management, carpentry, and mechanics. Farm laborers do not need any special education, but they must be strong, be in good physical condition, and have a lot of stamina.

Agribusiness usually involves agricultural jobs away from the farm setting. Some careers in agribusiness include food chemistry, plant or animal physiology, and agronomy. The food chemist develops and tests new foods and preservatives. The Food and Drug Administration employs many food chemists. The physiologist studies the structure of plants and animals to improve the growth of the plants and health of the animals. Agronomists conduct experiments in field crop problems. They also develop new methods of more efficiently growing high-quality crops with larger yields. These agribusiness careers all require a minimum of a four-year college degree.

The need for people in agriculture will continue as long as people need to eat. The career possibilities are endless and exciting. You may want to take a closer look at agricultural occupations when deciding on your career.

Job Opportunities in Food Services

Job Title	Job Description and Responsibilities	Required Education Experience, and Skills
Waiters and Waitresses	Take orders. Serve food. Prepare simple dishes such as salads and desserts. Prepare the bill and present it to the customer. Help set and clear the table.	No special education is required. Many new employees are trained on the job. The ability to do simple mathematics is required.
Cooks		
Institutional	Prepare food in large amounts. Follow a different menu every day. Clean work area.	Some cooking experience is needed. Training often is provided. One must be able to read a recipe. One must be able to produce a tasty product. One must be knowledgeable about good sanitation and safe working procedures.
Restaurant	Prepare individual orders promptly. Use same menu every day. Keep kitchen clean.	
Food Service Managers	Supervise and train personnel. Take inventory. Keep daily records. Maintain food quality. Order food and nonfood items from a warehouse. Direct all activity in the work place. Evaluate employees' performance.	Management and food service experience are important. (Some community colleges offer a two-year program in food service management.)
Food Service Directors	Perform all public relations duties. Develop policies and procedures. Train managers. Plan menus. Handle major purchasing. Order all food and nonfood items. Develop new recipes.	A four-year college degree in food service with management courses is recommended. Food service experience is needed. Good communication skills are essential.
Dietitians	Serve as food service directors. Provide nutrition education (Example: to hospital patients). Perform food and nutrition research. Provide information to the public. Act as a consultant for consumer groups. Provide expertise for food-related legislation.	Four-year college degree in nutrition with an internship is recommended. Food service experience is recommended. One must be a member of the American Dietetic Association. One must take continuing education classes.

After you have read the preceding material, complete the following items:

1. Define the term *legislative*.

   ____

   ____

   ____

2. Name one function of a consumer food advocate.

   ____

   ____

   ____

3. List one difference between institutional food service and restaurant food service.

   ____

   ____

4. If you were responsible for supervising personnel, taking inventory, and evaluating an employee's performance, what might your job title be?

   ____

   ____

5. List two duties of a crop farm operator.

   a. ______________________________________

   b. ______________________________________

6. Name two youth organizations that provide training experience for prospective farmers.

   a. ______________________________________

   b. ______________________________________

Junior High Multidisciplinary Lessons

Nutrition education is related to many other disciplines, such as art, English, social studies, science, physical education, and mathematics. Activities which include nutrition information, knowledge, or skills can be easily integrated into an existing curriculum. These activities become the means by which subject area skills can be developed. The *Choose Well, Be Well* curriculum guide for junior high school students not only provides a complete nutrition curriculum but also includes various nutrition-related activities to be used in the disciplines listed above. These supplementary activities do not require mastery of the nutrition minimum proficiencies, or an in-depth study of nutrition, but they serve to supplement and support the *Choose Well, Be Well* curriculum.

On the following chart these activities appear by subject, skill to be mastered, and location in the curriculum guide:

Subject	Skill	Lesson and page number
English	• Expressive writing (word cinquain section)	Lesson 11, pages 40 through 42
	• Dialogue, paragraph, punctuation, character development	Lesson 11, page 42
	• Survey techniques, reporting skills, listening, and writing skills	Lesson 11, page 42
	• Newspaper reading skills	Lesson 14, page 50
	• Business letter writing	Lesson 17, page 58
	• Survey interview skills	Lesson 18, page 63
Mathematics	• Multiplication and division of whole numbers	Lesson 5, page 24
	• Word problems	Lesson 5, page 24
	• Addition of whole numbers	Lesson 5, page 25
	• Calculating income	Lesson 14, page 51
	• Writing numbers in words	Lesson 19, page 68
Physical Education	• Nutrition and activity	Lesson 2, entire lesson
	• Effects of competition or performance on eating habits	Lesson 11, page 43
Science	• Microbiology	Lesson 25, page 89
Social Science	• World geography and the agricultural revolution	Lesson 20, page 72
	• Role of government and pressure groups	Lesson 26, page 93
Visual Arts	• Visual, tactile, and sensory feelings	Lesson 11, page 43
	• Commercial art techniques	Lesson 18, page 63

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Student Materials

Appendix K contains the handouts, work sheets, puzzles, games, and transparency masters that were cited in the text. Pages may be removed from the guide and used as a duplication master, or they may be laminated to tagboard. Refer to the specific lesson procedures for details about the use of these student materials.

Name ________________

Food Record

1. List each food you eat during a 24-hour period and the approximate time you eat the food.
2. Record the serving size of the food eaten, such as 2 teaspoonfuls (10 mL) or ½ cup.
3. Record the location where you ate the food, such as home, school cafeteria, or restaurant.
4. Record all food and beverages eaten, including snacks.

Time	Type of Food	Amount	Location

K-2

Name ______________

Could I Stay Healthy for Long on This Menu?

	Fruit/ Vegetable	Bread/ Cereal	Meat/Poultry Fish/Beans	Milk/Cheese	Extras
Breakfast					
Lunch					
Dinner					
Snack					
Total					
Four food group guidelines	Four or more*	Four or more	Two or more	Four (for teenagers)	No requirement Adds calories Calorie needs vary with the individual.

*Don't forget vitamin A and vitamin C sources.

Name ______________

Selecting Foods for Good Health

Mike (age thirteen) is taking a weekend trip with his family and would like you to select a healthful diet for him. For his breakfast he is in a rush and selects the following:

2 slices of toast with margarine (1 tsp. [5 g])
1 banana

He will be eating his lunch at "Freddie's Fast Food Restaurant" and dinner at "Maria's Mexican Restaurant." He also can select from the following snacks that his family has packed for the trip:

Potato chips
Canned fruit juice
Soft drinks
Carrot sticks
Celery sticks
Chocolate candy bars
Fresh apples
Cookies

Plan a nutritious diet for Mike, using the snacks listed above and the menus from the two restaurants. Complete the work sheet "Mike's Menu" to assist you in selecting Mike's diet.

Freddie's Fast-Food Drive-in Restaurant

Hamburgers

Famous burger

A patty of 100 percent beef with lettuce, tomato, mayonnaise, onion, and special sauce

Double burger

A double decker with two beef patties, lettuce, mayonnaise, onion, and special sauce

Fred's burger

A patty of 100 percent beef with mustard, ketchup, pickles, and onion

Sandwiches

Fish burger

Breaded fish filet with cheese, lettuce, and tartar sauce

Steak sandwich

A flaked, formed steak on a sourdough roll with lettuce and mayonnaise

Beef and cheese sandwich

A sandwich with sliced beef, cheese, and mayonnaise

Side orders

Small salad with lettuce, tomato, and choice of dressing
French fries, regular or large
Onion rings

Desserts

Apple turnover
Ice cream sundae—chocolate or strawberry

Beverages

Milkshake—vanilla, chocolate, or strawberry
Soft drink
Milk
Iced tea
Coffee

Maria's Mexican Restaurant

A la carte items

Nachos: Tortilla chips with cheese sauce
Tortilla chips
Small salad
Soup of the day
Tortilla
Refried beans
Spanish rice

Entrees

Taco: Beef or chicken
Tostada: With beans, beef, lettuce, and tomato
Enchilada: Beef, chicken, or cheese
Tamale: Beef or chicken
Burrito: Beef, bean, or chicken (with chili peppers)
Chile Relleno: Cheese-stuffed green chili dipped in egg batter and fried

Combination Dinners

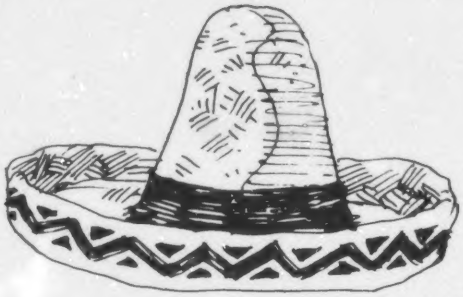
Any two items listed above with beans and rice
Any three items listed above with beans and rice

Dessert

Mexican cookie
Ice cream: chocolate, strawberry, or vanilla

Beverages

Soft drink
Milk
Coffee or tea
Iced tea



Name ____________________

Mike's Menu

Food Selected	Fruit/ Vegetable	Bread/ Cereal	Meat/Poultry Fish/Beans	Milk/Cheese	Extras
Breakfast 2 slices of toast 1 tsp. (5 g) margarine 1 banana					
Snack					
Lunch					
Snack					
Dinner					
Snack					
Total					
Requirements					

K-7

Name ____________________

Healthful Diet Quiz

1. The following is a list of refreshments to be served at a school party:

   Salted nuts
   Potato chips
   Brownies
   Soft drinks
   Buttered, salted popcorn
   Pretzels
   Cupcakes

   Based on what you have learned in this lesson, what changes would you recommend to the refreshment committee so that the students could select more nutritious snacks?

   ____
   ____
   ____

2. List three of the six "Dietary Guidelines for Americans" discussed in class.

   ____
   ____
   ____

3. Below is a menu with one food item from each of the four food groups. In column A, write the name of the food group that the food belongs in. In column C, write an alternate food that could be used for a bag lunch, using a food in the same food group.

A **Food Group**	**B** **Menu**	**C** **Alternate Menu**
______________	Chili with beef and beans	______________
______________	Whole wheat crackers	______________
______________	Sliced tomato Salad	______________
______________	Milk	______________

4. You are eating a quick dinner with a group of friends at a pizza restaurant. They have already ordered a cheese pizza and soft drinks. Name two food items you could add to this meal to improve its nutritional value.

____

5. Based on what you have learned from this lesson, how could you improve your eating habits?

____

____

What You Eat Is What You Get

Not Enough. . .	**Can Lead to . . .**
Calories	Fatigue, lack of energy, hunger, poor appearance, decreased attentiveness, or decreased growth
Protein	Decreased growth, poor appearance, lowered resistance to disease and infection, fatigue, or decreased attentiveness
Vitamins	Vitamin deficiency diseases, lowered resistance to disease and infection, fatigue, lack of energy, poor appearance, or decreased growth
Minerals	
Iron	Iron deficiency anemia, fatigue, or decreased attentiveness
Calcium	Malformation of bones and teeth
Fiber	Constipation or possibly other intestinal disorders (Eating foods with complex carbohydrates is a nutritional advantage. They have more nutrients and fiber.)

Excess . . .	**Can Lead to . . .**
Calories	Overweight
Fats	Overweight or heart disease
Sugars (Simple carbohydrates)	Overweight or dental caries or feeling full so you do not have room for nutritious foods
Salt	High blood pressure
Vitamins	
A	Blurred vision, irritability, joint pain, bone abnormalities, nausea, vomiting, rashes, or possible brain damage
D	Diarrhea, vomiting, irritability, or calcium deposits in soft tissues
C	Kidney stones, or gout, or possible scurvy symptoms when a person stops taking high doses

Name ____________________

Most Recent Meal

My most recent meal was

Breakfast ☐
Lunch ☐
Dinner ☐

It included ____
____
____
____

Classify the meal into food groups, using the information below.

Meat, Poultry, Fish, and Beans	Milk and Cheese	Fruit and Vegetable	Bread and Cereal

Meat, Poultry, Fish, and Beans

Beef, veal, lamb, pork, variety meats, such as liver, heart, or kidney
Poultry and eggs
Fish and shellfish
As alternates—dry beans, dry peas, lentils, nuts, peanuts, or peanut butter

Fruit and Vegetable

All fruits and vegetables

Milk and Cheese

Milk: fluid whole, evaporated, skim, dry, or buttermilk
Cheese: cottage, cheddar-type, natural or process
Ice cream or ice milk
Yogurt

Bread and Cereal

All breads and cereals that are whole grain, enriched, or restored

Answer the following questions:

Did your meal include a serving from all four food groups? ____________

If not, which ones were missing? ______________________________

____

____

Did your meal provide a food from each of the nutrient groups? ________

If not, which ones were missing? ______________________________

____

____

Did your meal include any high sugar or high fat foods? ____________

What were they? ____

____

____

Did your meal include whole grains? ____________________________

What were they? ____

____

____

Did your meal prepare your body for today's activities? ____________

____

____

Guide to Good Eating for Health and Fitness

1 Choose a variety of foods.

2 Choose complex carbohydrates rather than simple sugars.

3 Avoid too much fat.

4 Avoid too much salt.

5 Eat enough calories to maintain ideal weight.

6 Drink plenty of fluids.

How Should I Change My Diet?

Imagine that you are an athlete in training. Circle the changes you will make in your current diet to meet your special needs.

⇧ = Increase ⇄ = No change ⇩ = Decrease

Fluids	⇧	⇄	⇩
Carbohydrates (Complex)	⇧	⇄	⇩
Sugars	⇧	⇄	⇩
Protein	⇧	⇄	⇩
Fat	⇧	⇄	⇩

Should I take:

Salt tablets?	Yes	No
Vitamin supplements?	Yes	No
Mineral supplements?	Yes	No

Fit Folks Need Fit Food

Good Eating Habits Can Make a Difference in Performance

What?	Why?	How?
Fluids	Fluid intake should be increased. The most important concern for an athlete is getting enough fluids. Without water the body cannot function properly, and this loss affects an athlete's performance. Water is the best fluid for replacing sweat losses. One should drink water before, during, and after strenuous activity.	Drink more fluids. Increasing your intake of fluids is easy. • Have fruit juice available in the refrigerator to drink as a snack. • Have a glass of orange juice for breakfast. • Drink a glass of juice or water before going to bed. • Have a glass of low-fat milk, fruit juice, or water at every meal. • Carry water, low-fat milk, or juice on bike trips or in your school lunch. • Make sure that during sports practice there is a drinking fountain or a container filled with fluids nearby—and drink frequently.
Calories	Athletes need more calories, and the amount depends on how strenuous the activity is.	Extra calories should be supplied with complex carbohydrates.
Complex carbohydrates	Complex carbohydrates should be increased to meet a person's increased need for calories. Complex carbohydrates are the best fuel sources for athletes.	Eat more complex carbohydrates. To increase the variety of complex carbohydrate foods in your diet, do the following: • Start the day with some hot or cold whole-grain cereal, like oatmeal or shredded wheat. Add low-fat milk and top it with fresh fruit or raisins and nuts. • Eat whole wheat toast with a little margarine, some fresh fruit, and orange juice for breakfast. • For lunch fill a plastic bag with fresh raw vegetables such as broccoli, celery, spinach, cabbage, carrots, or zucchini. Eat these vegetables with cheese chunks and a whole wheat muffin. • Use whole wheat bread when you make a sandwich. • For dinner eat different kinds of beans. Add beans (kidney, garbanzo, and green) to your regular salad; make homemade vegetarian chili using kidney beans; add beans to your homemade soups; or use beans as a side dish. • Try using brown rice or bulgur. It is great in a casserole with chicken, fish, or vegetables.
Simple carbohydrates	It is best to avoid concentrated sweets. They are loaded with calories but do not have much in the way of nutrients. Eating concentrated sugary foods 30 to 40 minutes before an activity may lead to fatigue and a feeling of heaviness just when you want to perform. Fresh fruits contain simple carbohydrates, but they also contain vitamins and minerals. The quantity of fresh fruits in your diet should be increased.	Eat more fruit. • Use fruit as dessert. This is one way to cut back on sugary desserts. • Top breakfast cereal with nuts and raisins. • Take apples, bananas, or oranges with you as a snack.

What?	Why?	How?
Protein	Athletes' protein needs are the same as everyone else's, and the typical American diet contains plenty of protein. Stocking up on protein, such as taking protein supplements, will not do much good. Try to substitute low-fat protein foods for high-fat protein foods.	Eat low-fat protein foods. Examples are roasted or baked chicken, turkey, and fish; lean meats (like flank steak); low-fat and nonfat milk products and yogurt; and all bean and soy products not marinated in an oil base.
Fat	Fatty foods should be eaten in moderation and also should be avoided before athletic activity.	Eat fewer fatty foods. Have you been eating too much fat? If so, there are quick ways to cut down. Here are some suggestions. • Bake, roast, or broil foods. For example, a baked chicken leg contains roughly 20 percent fat while the same piece of chicken fried contains about 40 to 60 percent fat. • Trim fat off meat so there is little or no visible fat left. • Substitute low-fat food snacks for potato chips, corn chips, and candy bars. Use fruit, celery, and carrot sticks, raisins, green and red peppers, cauliflower, cherry tomatoes, radishes, or zucchini. • Minimize visits to fast-food restaurants.
Vitamins and minerals	A balanced diet usually will supply all the vitamins and minerals people need for health and fitness. Supplements are not necessary. Care should be taken to include foods high in iron.	Eat foods containing more vitamins and minerals. Do you need to increase your vitamin and mineral intake? You have already done it! By increasing your intake of a variety of complex carbohydrate foods and fruit, as well as by decreasing your intake of sugary and fatty foods, you will already be increasing your intake of some vitamins and minerals. Consume more iron. You should pay special attention to your iron intake. The following are animal sources: Meat, poultry, fish (3 oz.): Lean meats, organ meats (like liver), turkey (dark meat), shrimp, oysters, sardines, or clams The following are plant sources: Beans, fruits, and vegetables (½ cup): Baked beans, dry beans, spinach, peas, broccoli, mustard greens, collards, potatoes with skins, apricots, raisins, peanut butter, prunes, wheat germ, or molasses (as in gingerbread)
Salt	Salt tablets are not necessary. Salt tablets may cause cramps or dizziness. There is enough salt in a normal diet.	

Name ____________________

Three Diets

Joanna, Carol, and Howard each wrote down what they had to eat yesterday. Review their diet records; then answer the questions.

	Joanna	Carol	Howard
7 a.m.	Doughnut		Orange juice Peanut butter sandwich on whole wheat bread Milk
9:30 a.m.	Cola		
Noon	Potato chips Milk Candy bar	Two slices dark rye bread Milk	Bean burrito with cheese Green beans Apple slices
4 p.m.	Chocolate-covered peanuts	Grapefruit	
6 p.m.	Hamburger French fries Cola	Three pieces broiled fish Sliced carrots Whole wheat bread Baked potato Green salad Carrot cake Milk, two glasses	Chili Cornbread Spinach salad Milk Oatmeal cookies

1. Describe how all three students might be feeling at 11 a.m. Why?

2. Do you think Joanna's diet has adequate fiber? What could be the disadvantage of not enough fiber?

3. Name two other problems with Joanna's diet and how they might affect her physical fitness and appearance.

Nutrients for You

Nutrient Group	Functions	Food Sources
Carbohydrate (Starches Sugars Fiber)	Provides energy in the form of glucose, which is the product broken down from starch and sugar digestion Provides fiber which is indigestible but is necessary for normal passage of wastes	Grain products, breads, cereals, pasta, rice, fruits and vegetables, refined sweets such as sugars, honey, syrup, jams, and jellies
Protein	Provides building materials for all living cells Provides energy if there is insufficient carbohydrate and/or fat in the diet	Meat, poultry, fish, eggs, dried beans and peas, lentils, milk, cheese, nuts, seeds, and grains
Fat	Provides a concentrated source of energy Carries the fat-soluble vitamins Provides essential fatty acids Provides cushioning for vital organs	Margarine, butter, salad dressings, mayonnaise, vegetable oils, fried foods, meats, whole milk, cream, some cheeses, nuts, seeds, bacon, and avocados
Vitamins		
Vitamin A	Helps in maintaining healthy eyes and skin Is important for night vision Helps build strong bones Promotes wound healing Helps the body fight infection	Yellow, orange, and dark green vegetables deep yellow fruits, in the fat of animal products like fish, milk, eggs, and liver
B vitamins (riboflavin, thiamin, niacin, B-6, B-12, pantothenic acid, biotin, folacin)	Is needed to release energy from protein, fat, and carbohydrate Helps in maintaining healthy eyes, skin, and mouth Is needed for maintaining a healthy brain and nervous system	Many foods such as whole grain and enriched cereals and breads, meats, beans, and peas
Vitamin C	Is needed for healing wounds Helps in the formation and repair of bones and teeth Helps combat infection Is needed for the development of blood vessels Helps the body use minerals	Citrus fruits, melons, berries, dark leafy greens, broccoli, cabbage, and green and red peppers
Vitamin D	Is needed for using calcium and phosphorus to build strong bones and teeth	Produced in the body when skin is exposed to sunlight Also in fatty fish, liver, eggs, and butter; added to most milk

Nutrient Group	Functions	Food Sources
Vitamin E	Helps in preserving the cell tissue	Found in a wide variety of foods Vegetable oils and whole grain cereals—especially rich sources
Vitamin K	Is necessary for normal blood clotting	Dark green leafy vegetables, peas, cauliflower, whole grains
Minerals		
Calcium	Builds, repairs, and maintains bones and teeth Helps regulate heart beat Aids in muscle relaxation and contraction Regulates blood clotting and activities of the heart, muscles, and nerves	Milk and milk products (except butter), dark green leafy vegetables
Phosphorus	Aids in growth Is needed for energy transfer in the body Works with calcium in building strong bones and teeth	Found in many foods, especially animal products
Fluoride	Helps in the formation of strong bones and teeth Helps prevent dental caries	Seafood, some plants, fluoridated water
Iron	Carries oxygen in the blood Is part of the hemoglobin in red blood cells	Liver, meat, poultry, fish, dark green leafy vegetables, dried fruits, dried beans and peas, enriched grain products
Iodine	Is necessary for making a hormone produced by the thyroid gland, which controls growth	Marine seafood, plant products grown in soil that contains iodine, some milk and milk products, iodized salt
Zinc	Is necessary for normal growth Is needed for normal ability to taste Is necessary for making proteins Is necessary for healing wounds	Animal products, especially oysters, herring, milk, egg yolks, and meat, whole grain breads and cereals

The School Lunch Pattern

Components	Grades 4—12 Age nine and over (Group 4)	Grades 7—12 recommended quantities (Group 5)	Specific Requirements
I. Meat or Meat Alternate A serving of one of the following or a combination to give an equivalent quantity:			
Lean meat, poultry, or fish (edible portion as served)	2 oz. (56 g)	3 oz. (84 g)	Must be served in the main dish and one other menu item. Textured vegetable protein products, cheese alternate products, and enriched macaroni with fortified protein may be used to meet part of the meat/meat alternate requirement.
Cheese	2 oz. (56 g)	3 oz. (84 g)	
Large egg(s)	1	1½	
Cooked dry beans or peas	½ cup (90 g)	¾ cup (135 g)	
Peanut butter	4 Tbsp. (64 g)	6 Tbsp. (96 g)	
II., III. Vegetable and/or Fruit Two or more servings of vegetable or fruit or both to total ¾ cup	¾ cup (180 g)	¾ cup (180 g)	No more than one-half of the total requirement may be met with full-strength fruit or vegetable juice. Cooked dry beans or peas may be used as a meat alternate or as a vegetable but not as both in the same meal.
IV. Bread or Bread Alternate Servings of bread or bread alternate. A serving is: • 1 slice of whole-grain or enriched bread • A whole-grain or enriched biscuit, roll, muffin, and so forth • ½ cup of cooked whole-grain or enriched rice, macaroni, noodles, whole-grain or enriched pasta products or other cereal grains, such as bulgur or corn grits • A combination of any of the above	8 per week	10 per week	At least one serving of bread or an equivalent quantity of bread alternate must be served daily. Enriched macaroni with fortified protein may be used as a meat alternate or as a bread alternate but not as both in the same meal.
V. Milk A serving of fluid milk	½ pint (8 fl. oz.) (240 mL)	½ pint (8 fl. oz.) (240 mL)	At least one of the following forms of milk must be offered: • Unflavored low-fat milk • Unflavored skim milk • Unflavored buttermilk NOTE: This requirement does not prohibit offering other milks, such as whole milk or flavored milk, along with one or more of the above.

Food Sources of Vitamin A, Vitamin C, and Iron

Foods for Vitamin A	Foods for Vitamin C	Foods for Iron
Include a vitamin A vegetable or fruit at least twice a week.	Include a vitamin C vegetable or fruit at least two or three times a week.	
¼-cup serving (about 1,500 or more international units of vitamin A) Beet greens Carrots Chard, Swiss Chili peppers, red Collards Cress, garden Dandelion greens Kale Mangoes Mixed vegetables (frozen) Mustard greens Peas and carrots (canned or frozen) Peppers, sweet red Pumpkin Spinach Squash, winter (acorn, butternut, Hubbard) Sweet potatoes Turnip greens ¼-cup serving (about 750—1500 international units of vitamin A) Apricots Broccoli Cantaloupe Chicory greens Papayas Purple plums (canned) ½-cup serving (about 750—1500 international units of vitamin A) Asparagus, green Cherries, red sour Chili peppers, green (fresh) Endive, curly Escarole Nectarines	¼-cup serving (about 25 milligrams or more of vitamin C) Acerola Broccoli Brussels sprouts Chili peppers, red and green Guavas Orange juice Oranges Papayas Peppers, sweet red and green ¼-cup serving (about 15—25 milligrams of vitamin C) Cauliflower Collards Cress, garden Grapefruit Grapefruit juice Grapefruit-orange juice Kale Kohlrabi Kumquats Mangoes Mustard greens Pineapple juice (canned—vitamin C restored) Strawberries Tangerine juice Tangerines ¼-cup serving (about 8—15 milligrams of vitamin C) Asparagus Cabbage Cantaloupe Dandelion greens Honeydew melon Okra Potatoes (baked, boiled, or steamed)	Meat and Meat Alternates Dry beans and peas Eggs Meats in general, especially liver and other organ meats Peanut butter Shellfish Turkey Vegetables and Fruits Apricots (dried) Asparagus (canned) Beans—green, wax, lima (canned) Bean sprouts Beets (canned) Broccoli Brussels sprouts Cherries (canned) Dried fruits—apples, apricots, dates, figs, peaches, prunes, raisins Grapes (canned) Parsnips Peas, green Potatoes (canned) Sauerkraut (canned) Squash (winter) Sweet potatoes Tomatoes (canned) Tomato juice, paste, puree, sauce Vegetables: Dark green leafy—beet greens, chard, collards, kale, mustard greens, spinach, turnip greens Vegetable juice (canned) Bread and Bread Alternates All enriched or whole grain bread and bread alternates

Foods for Vitamin A	Foods for Vitamin C	Foods for Iron
Peaches (except canned) Prunes Tomatoes Tomato juice or reconstituted paste or puree 1500 I.U. of vitamin A are about one-third the RDA for vitamin A.	Potatoes (reconstituted instant mashed—vitamin C restored) Raspberries, red Rutabagas Sauerkraut Spinach Sweet potatoes (except those canned in syrup) Tangelos Tomatoes Tomato juice or reconstituted paste or puree Turnip greens Turnips 25 mg vitamin C is about one-half the RDA for vitamin C.	

Reprinted with permission from "Chart 2 Foods for School Lunches and Breakfasts" in *Menu Planning Guide for School Food Service*. Washington, D.C.: U.S. Department of Agriculture, 1980. p. 12.

Name ______________________

Lunch Scoreboard

Write on the spaces provided below what you ate for lunch today or yesterday.

The lunch I ate: ______________________________________

____

____

____

____

____

Fill in the spaces in the chart below with the appropriate food from your lunch menu above. For each blank you fill with a correct food, score five points. A perfect score is 40 points.

School Lunch Components	Food I Ate	Score
I. Meat/Meat Alternate		
II. Fruit/Vegetable		
III. Fruit/Vegetable		
IV. Bread/Bread Alternate		
V. Milk		
Vitamin A source food		
Vitamin C source food		
Iron source food		
Total score		

Name ______________

Menu Evaluation

List each day's food items and amounts under the appropriate component. Place a (✓) in the column to the right of the square if the component requirement is satisfied for each meal. Include the total number of servings of bread for the week to meet the weekly requirement of eight servings.

	Component							
Day	**I Meat Two ounces**		**II, III Fruit/Vegetable Total of ¾ cup**		**IV Bread One serving per day and eight per week**		**V Milk Eight ounces**	
Monday								
Tuesday								
Wednesday								
Thursday								
Friday								

Total number of servings of bread for the week (eight required): ____________

Using the "Food Sources of Vitamin A, Vitamin C, and Iron" handout, *circle* the vegetables or fruits providing a good source of vitamin A. *Underline* the vegetable or fruits providing a good source of vitamin C. *Star* the foods providing a source of iron.

Totals for the week:

_____ Servings of foods containing vitamin A
_____ Servings of foods containing vitamin C
_____ Servings of foods containing iron

Name ____________________

What's for Lunch?

1. Write a lunch menu for three days that will satisfy the National School Lunch Program's requirements. Be sure to record the amounts of all foods listed on the menu.

Day One		Day Two		Day Three	
Food	Amount	Food	Amount	Food	Amount

2. Write the components of the school lunch pattern and list one nutrient provided by each component.

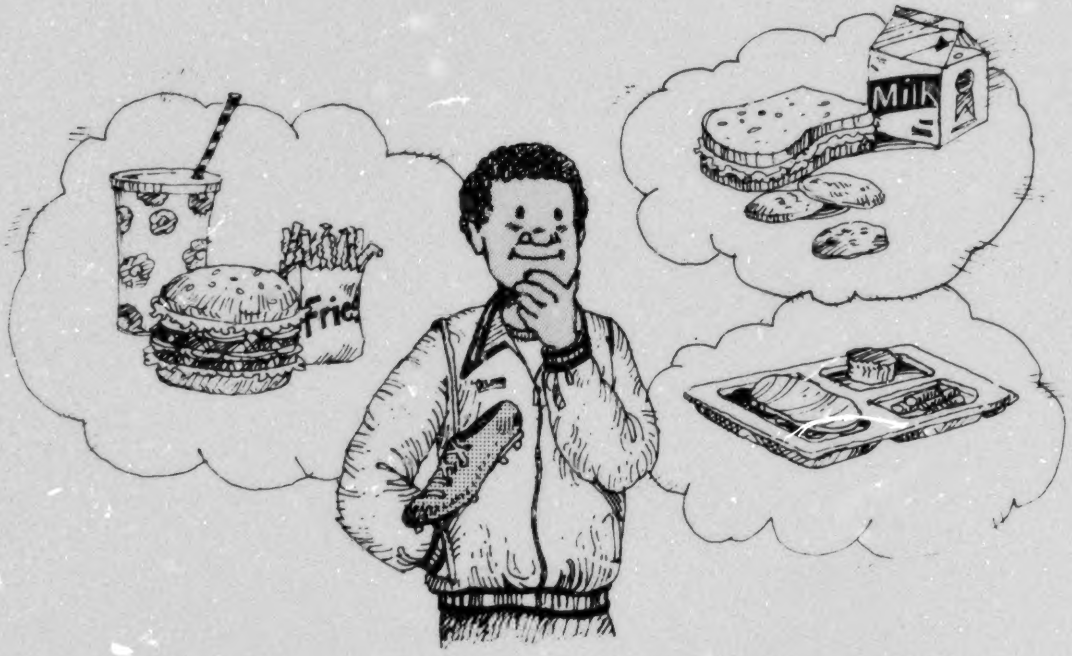
Component	Nutrient Provided

Ray's Problem

Ray, an eighth grade relay runner, left the gym after his early morning workout with Coach Simms. For the hundredth time he looked at the sign that Coach Simms had made the track team read over and over again. He read it to himself one more time as he took a big drink of water.

Attention to proper nutrition is important to athletes and fitness enthusiasts, since deficiencies in calories and nutrients can lower performance ability. Give thought to what you eat. Do your best at an athletic meet.

Ray always tries to follow that message when he eats. It is important to him to do the best job possible. But, he has a problem. Today is his birthday. As a special treat, a couple of his friends are planning to take him to lunch at a local fast-food restaurant. And this is the day the school cafeteria is serving his favorite foods: turkey, gravy, and all of the trimmings. And, what makes Ray's problem more difficult is that his sister Lulu prepared a special sack lunch for him that includes chunky chicken salad on thick whole wheat bread, ice cold milk, and her special oatmeal cookies. His mouth watered for that delicious turkey. But he also was looking forward to a good time at the birthday lunch his friends had planned. And then there was the special sack lunch his sister had worked so hard to prepare. To top it off, this afternoon the Mid-City track meet is to be held. What should Ray do?



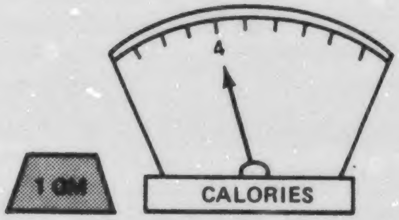
Ray's Luncheon Choices

School Lunch	Fast-Food Lunch	Sack Lunch
Turkey and gravy	Double hamburger	Thick whole wheat bread with chunky chicken salad
Cooked carrots	French fries	Carrot and celery sticks
Hot roll and butter	Soda pop	Apple
Cranberry sauce	Cherry turnover	Four oatmeal cookies
Cookie		Milk
Milk		

Name ________________

Calories and Nutrients

Energy Providing Nutrients: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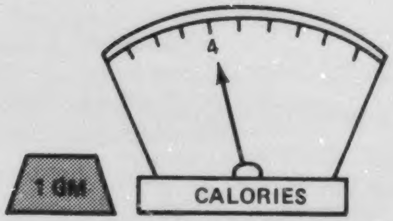
CALORIES

Protein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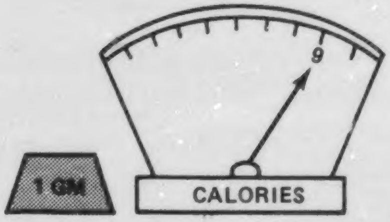
CALORIES

Carbohydrates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CALORIES

Fat

Which nutrient gives us the most food energy per gram? ________

What might you say about foods containing a lot of fat? ________

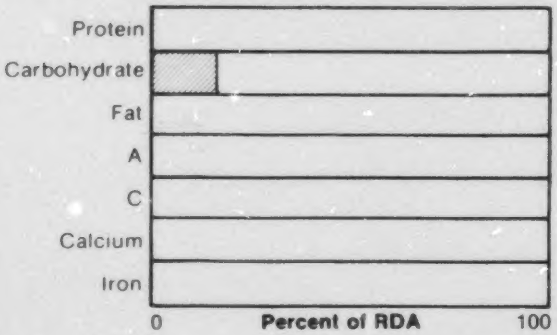
____

____

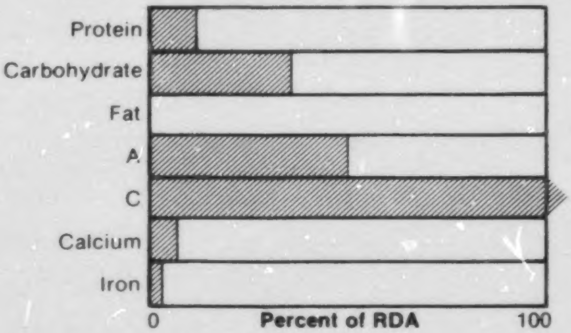
Name ____________________

How Can I Get 150 Calories?

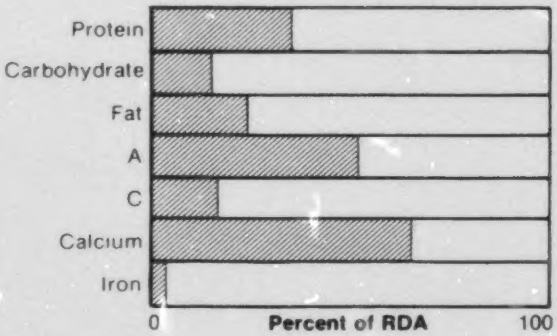
▶ Cola drink 150 calories = 1½ cups (355 mL)



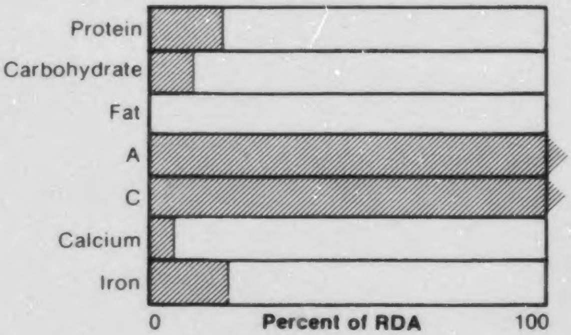
▶ Orange juice 150 calories = 1¼ cups (296 mL)



▶ Low-fat milk 150 calories = 1 cup (237 mL)



▶ Tomato juice 150 calories = 3¾ cups (887 mL)



1. Which drinks supply vitamin A?

____

2. Which drinks supply 100 percent of the RDA for vitamin C?

____

3. Besides carbohydrate, which other nutrients does the cola drink supply?

____

What is the carbohydrate in the cola drink (for example, sugar, starch, honey)?

____

4. Is the cola drink the best choice for a snack?

____

5. Given these four choices, which one would you choose for a snack. (Be honest!) ____

Why? ____

K-31

Height and Weight Chart

Girls 11—18: Average Weight for Height Table

Height (inches)	Age (Years) 11	12	13	14	15	16	17	18
50	61	62						
51	63	65						
52	65	67						
53	68	69	71					
54	71	71	73					
55	74	75	77	78				
56	78	79	81	83				
57	82	82	84	88	92			
58	86	86	88	93	96	101		
59	90	90	92	96	100	103	104	
60	95	95	97	101	105	108	109	111
61	99	100	101	105	105	112	113	116
62	104	105	106	109	113	115	117	118
63		110	110	112	116	117	119	120
64		114	115	117	119	120	122	123
65		118	120	121	122	123	126	126
66			124	124	125	128	129	130
67			128	130	131	133	133	135
68			131	133	135	136	138	138
69				135	137	138	140	142
70				136	138	140	142	144
71				138	140	142	144	145

Boys 11—18: Average Weight for Height Table

Height (inches)	Age (Years) 11	12	13	14	15	16	17	18
50	58	58						
51	61	61						
52	64	64	64					
53	67	68	68					
54	70	71	71	72				
55	73	74	74	74				
56	77	77	78	78	80			
57	81	81	82	83	83			
58	84	85	85	86	87			
59	88	89	89	90	90	90		
60	92	92	93	94	95	96		
61	95	96	97	99	100	103	106	
62	100	101	102	103	104	107	111	116
63	105	106	107	108	110	113	118	123
64		109	111	113	115	117	121	126
65		114	117	118	120	122	127	131
66			119	122	125	128	132	136
67			124	128	130	134	136	139
68				134	134	137	141	143
69				137	139	143	146	149
70				143	144	145	148	151
71				148	150	151	152	154
72					153	155	156	158
73					157	160	162	164
74					160	164	168	170

Reprinted with permission from "Average Height-Weight Tables for Boys and Girls" from *Nutritional Support of Medical Practice*. Edited by Howard A. Schneider and others. Hagerstown, Md.: Harper and Row Publishers, © 1977, Table A-10 in the appendix.

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Name ____________________

Food Diary

Ideal weight: ______________________________

Present weight (optional): ________________

Recommended daily energy intake: ______

	Age	Weight	Recommended calorie intake	Ranges of calorie intake
Males	11—14	99 lbs.	2,700	(2,000—3,700)
	15—18	145 lbs.	2,800	(2,100—3,900)
Females	11—14	101 lbs.	2,200	(1,500—3,000)
	15—18	120 lbs.	2,100	(1,200—3,000)

Food Diary

Day One Food Eaten	Calories Consumed
	Total

This day was normal_____ not normal_____ compared to how I usually eat.

Day Two Food Eaten	Calories Consumed
	Total

This day was normal_____not normal_____compared to how I usually eat.

Name ____________________

Calories and Activity

Activity: Sedentary
Sleeping, sitting, reading, watching television, listening to radio

80 to 100 calories per hour

Activity: Light
Standing up and cooking, washing dishes, ironing, walking slowly

110 to 160 calories per hour

Activity: Moderate
Walking moderately fast, playing ping pong, mopping, making beds, light gardening

120 to 240 calories per hour

Activity: Vigorous
Washing and waxing car, walking fast, bowling, moderate bicycling

250 to 350 calories per hour

Activity: Strenuous
Running, swimming, tennis, football, skiing

350 or more calories per hour

Average Joe and Active Arthur spend a typical day as follows. Using the calorie levels listed above, determine the number of calories each one has used.

Average Joe

Sleeping—nine hours
Bus ride to and from school—one hour
Sitting in school—six hours
Physical education class—one hour
Sitting and eating— one hour
Homework—one hour
Watching television—three hours
Other light activity—two hours

Sedentary activity:
hours × 90 calories per hour = ______

Light activity:
hours × 130 calories per hour = ______

Moderate activity:
hours × 180 calories per hour = ______

Vigorous activity:
hours × 300 calories per hour = ______

Strenuous activity:
hours × 400 calories per hour = ______

Total ______

Active Arthur

Sleeping—nine hours
Bike ride to and from school—one hour
Sitting in school—six hours
Physical education class—one hour
Sitting and eating—one hour
Homework— one hour
Jogging/soccer practice—two hours
Watching television—one hour
Other light activity—two hours

Sedentary activity:
hours × 90 calories per hour = ______

Light activity:
hours × 130 calories per hour = ______

Moderate activity:
hours × 180 calories per hour = ______

Vigorous activity:
hours × 300 calories per hour = ______

Strenuous activity:
hours × 400 calories per hour = ______

Total ______

Finding the Diet That Will Work For You

Browse in the local bookstore. Leaf through the latest issue of a fashion magazine. Check the newspaper. Everywhere you look there are diets. Your friends ask you to go to a diet group with them. Your relatives are eager to tell you about the "Ice Cream Lover's Diet," the "Calorie Counter's Diet," the "Eat All You Want and Lose Diet." Which one do you choose? Which one will really help you to lose weight and keep it off?

This checklist is your guide to evaluating diets. If the diet cannot measure up to this test, do not go on it. The diet will be a waste of time and may even be harmful to your health.

_____ You will be eating some foods that you like.
_____ You will be eating a wide variety of foods rather than being limited to a few.
_____ You can afford the diet.
_____ You do not have to buy any special foods or gadgets to go on the diet.
_____ You can stay on the diet for three to six months.
_____ The diet will not endanger your health.
_____ The diet is nutritionally balanced and includes foods from each of the four food groups:

___ Milk and Cheese Group (milk, cheese, cottage cheese, yogurt, ice cream)

___ Meat, Poultry, Fish, and Beans Group (meat, fish, poultry, nuts, eggs, dried beans, and peas)

___ Bread and Cereal Group (bread, cereal, rice, tortillas, flour, cornmeal)

___ Fruit and Vegetable Group

MILK
BEANS
CEREAL

_____ You will be eating at least three times a day and possibly up to five times a day.
_____ You will be eating fewer calories and/or you will be getting more exercise.
_____ You will learn some ways to select and prepare foods so that they will have fewer calories.
_____ You will eat differently as a result of having been on this diet.
_____ You will lose one to two pounds a week on this diet.

This material was developed by the Cling Peach Advisory Board, the California Milk Advisory Board, and the California Frozen Vegetable Council.

Name ____________________

Calories and Exercise

1. Janet's recommended calorie intake is 2,200 calories per day. (She is thirteen years old.) How many calories would she consume in seven days?

____

2. Janet ate foods to tally 6,200 calories over a period of three days. Did she eat more or less than her recommended daily intake? By how many calories?

____

3. Carl is sixteen years old. His recommended calorie intake is 2,800 calories per day. How many calories should he have in five days?

____

4. A one-ounce caramel bar contains 118 calories. A 14-minute swim will burn 118 calories. Gordon ate four caramel bars. How many minutes must he swim to burn off the calories?

____

5. A 1¼-inch (3 cm) square of chocolate fudge contains 118 calories. How many calories are there in four squares of chocolate fudge?

____

6. If you eat the following, how many calories will you consume?

   Hamburger with mayonnaise, 450 calories; milk, 88 calories; apple, 61 calories; 2 chocolate chip cookies, 100 calories; ice cream bar, 96 calories

____

7. If Pamela reduces her calorie intake by 500 calories a day, she can lose five pounds in 35 days. How many days will it take to lose 25 pounds?

____

How many days will it take to lose 15 pounds?

____

Name ______________

Pack a Lunch

Using the following list of ingredients, make a sandwich:

Kind of Food	Calories
2 pieces whole wheat bread	130
2 pieces white bread	130
1 tablespoon (14 g) mayonnaise	101
2 tablespoons (28 g) mayonnaise	202
½ avocado	190
Tomato (2 slices)	10
Alfalfa sprouts	2
Lettuce	2
2 ounces (56 g) ham	167
3 slices bacon	129
½ cup (80 g) tuna (dry)	168
Peanut butter (2 tablespoons [32 g])	190
Jelly (1 tablespoon [18 g])	55
Swiss cheese (1 ounce [28 g])	110

1. How many calories does your sandwich contain?

   ____

2. If you ate just one-half of that sandwich, how many calories would you have eaten?

   ____

3. A ham and Swiss cheese sandwich with two pieces of whole wheat bread, one tablespoon mayonnaise, and lettuce has how many calories?

   ____

4. A tuna sandwich with two tablespoons of mayonnaise (mixed into the tuna), lettuce, and alfalfa sprouts on two pieces of whole wheat bread has how many calories?

   ____

5. A peanut butter and jelly sandwich consisting of peanut butter and jelly between two pieces of whole wheat bread has how many calories?

   ____

Calories in Fast Foods

Fast foods may or may not be nutritious; however, most are high in either fat or sugar (or both) and are therefore very high calorie foods. Compare the caloric values of your favorite fast foods listed as follows:

Baskin Robbins®*

One scoop (2½ ounces [70 g]) with sugar cone:

	Calories
Chocolate fudge	229
French vanilla	217
Rocky road	204
Butter pecan	195
Jamoca almond fudge	190
Chocolate mint	189
Jamoca	182
Fresh strawberry	168
Fresh peach	165
Mango sherbet	132
Banana daquiri ice	129

Burger King®

	Calories
The "Whopper"	606
The "Whaler"	744
French fries (small)	214
Large vanilla shake	332
Hamburger	252
Cheeseburger	305
Hot dog	156

Colonel Sanders' Kentucky Fried Chicken®

	Calories
Regular dinner	830
Extra crispy	950
Drumstick	136
Wing	151

Taco Bell®

	Calories
One taco	159
Tostada	188
Frijoles (one order)	178
Enchirito	418
Burrito	329
Bellburger	243

McDonald's®

	Calories
Egg McMuffin	312
Hamburger	249
Cheeseburger	309
Quarter Pounder	414
Quarter Pounder with cheese	521
Big Mac	557
Filet-O-Fish	406
French fries	215
Apple pie	265
Chocolate shake	317
Vanilla shake	322
Strawberry shake	315
English muffin (buttered)	186

Dairy Queen®

	Calories
Average banana split	547
"Super Brazier"	907
Chicken snack	342
Chocolate dipped cone	
Small	150
Medium	300
Large	450
Chocolate malt (large)	840
Chocolate sundae	400

Carl's Jr.®†

	Calories
Super Star Hamburger	780
Fish filet sandwich	550

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*Reprinted with permission from E. A. Young, E. H. Brennan, G. L. Irving, "Update: Nutritional Analysis of Fast Foods." Columbus, Ohio: Ross Laboratories, Vol. 8, No. 2 (March-April, 1981).

†Reprinted with permission from "Nutrition You Can Count On," Anaheim, Calif.: Carl Karcher Enterprises, 1980.

Name ____________________

Fast-Food Friends

Joe and Susan stopped by a fast-food restaurant on the way back from Lake Tahoe. Joe ordered a three-decker hamburger with cheese (760 calories, 51 grams carbohydate), a small order of french fries (200 calories, 28 grams carbohydrate), and a cola drink (146 calories, 18.5 grams carbohydrate).

Susan ordered a cheeseburger (310 calories, 26 grams carbohydrate) onion rings (150 calories, 20 grams carbohydrate), and a diet cola drink (1 calorie, 0 grams carbohydrate).

1. Joe ate all that he ordered. How many calories did he consume?
   ____
2. How many grams of carbohydrate did he consume?
   ____
3. Susan ate all that she ordered. How many calories did she consume?
   ____
4. How many grams of carbohydrate did she consume?
   ____
5. How many fewer calories did Susan eat than Joe did?
   ____
6. Joe's recommended daily calorie intake is 2,800 calories. If this meal was all that he had eaten so far that day, how many more calories did he need to meet his minimum daily requirement? ____________________

K-39

Name ______________________

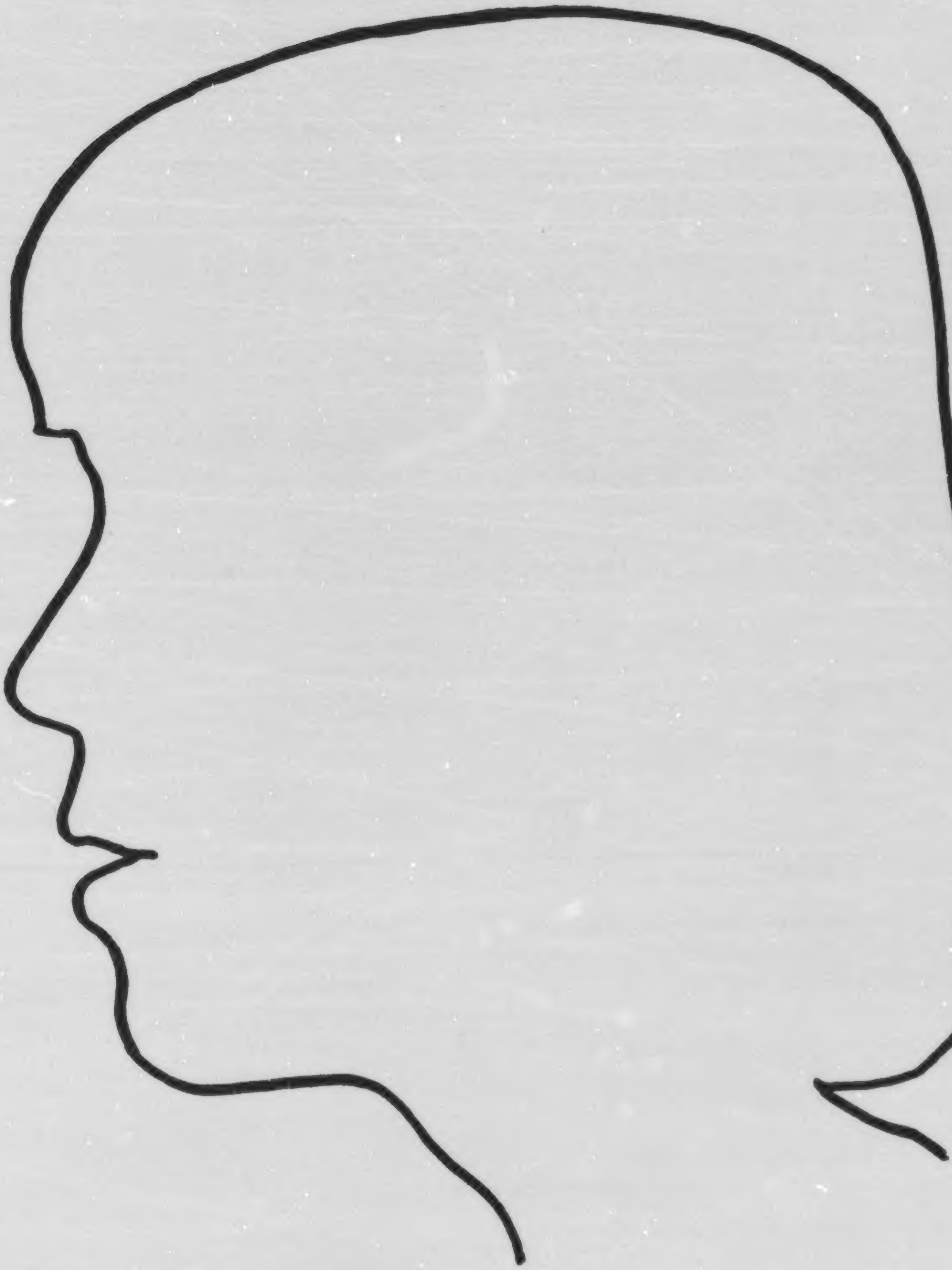
Quiz

1. Why do we need energy? ______________________

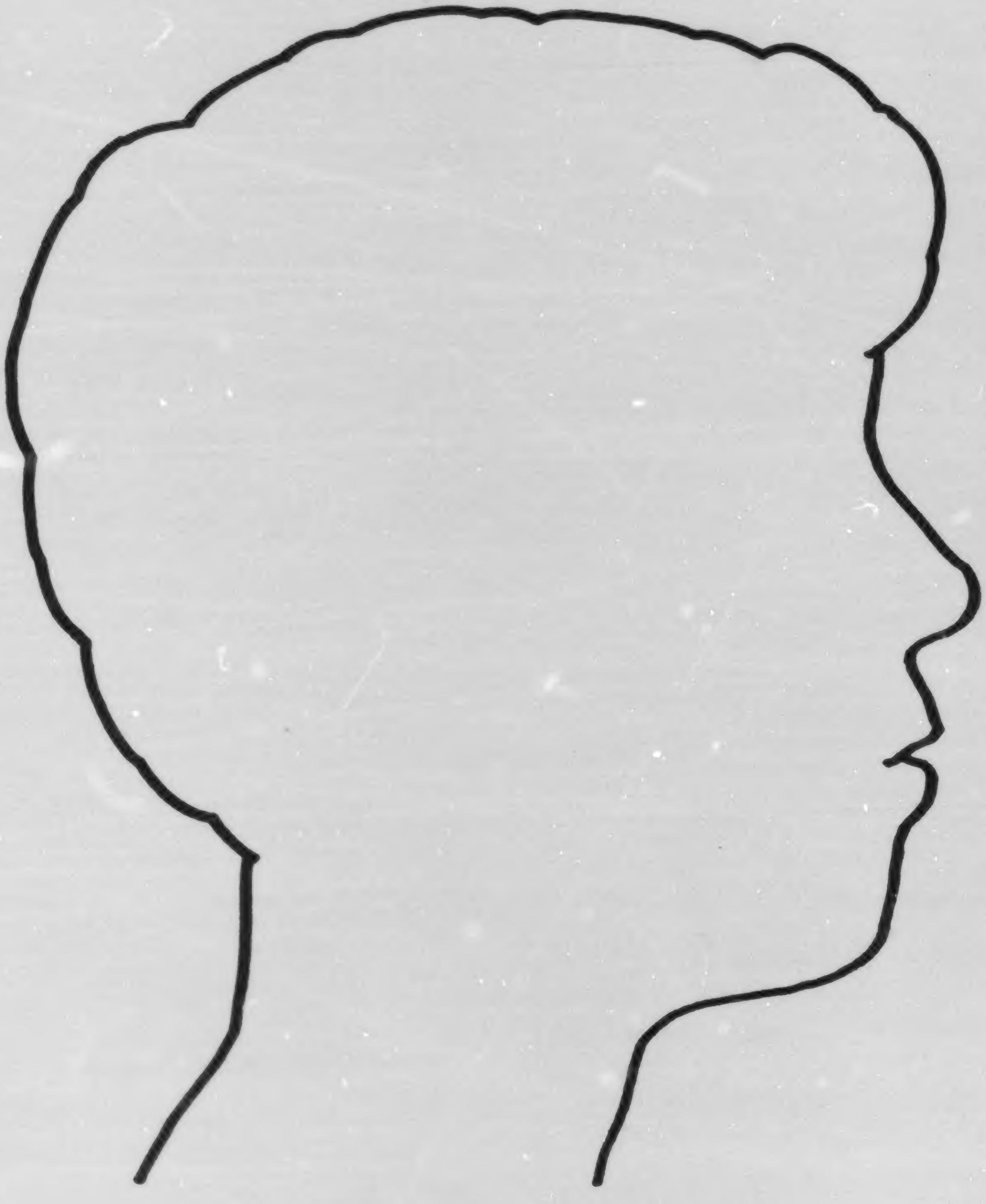
2. What provides energy to our bodies? (Be specific.) ______

3. Why is a calorie important to us? ______________________

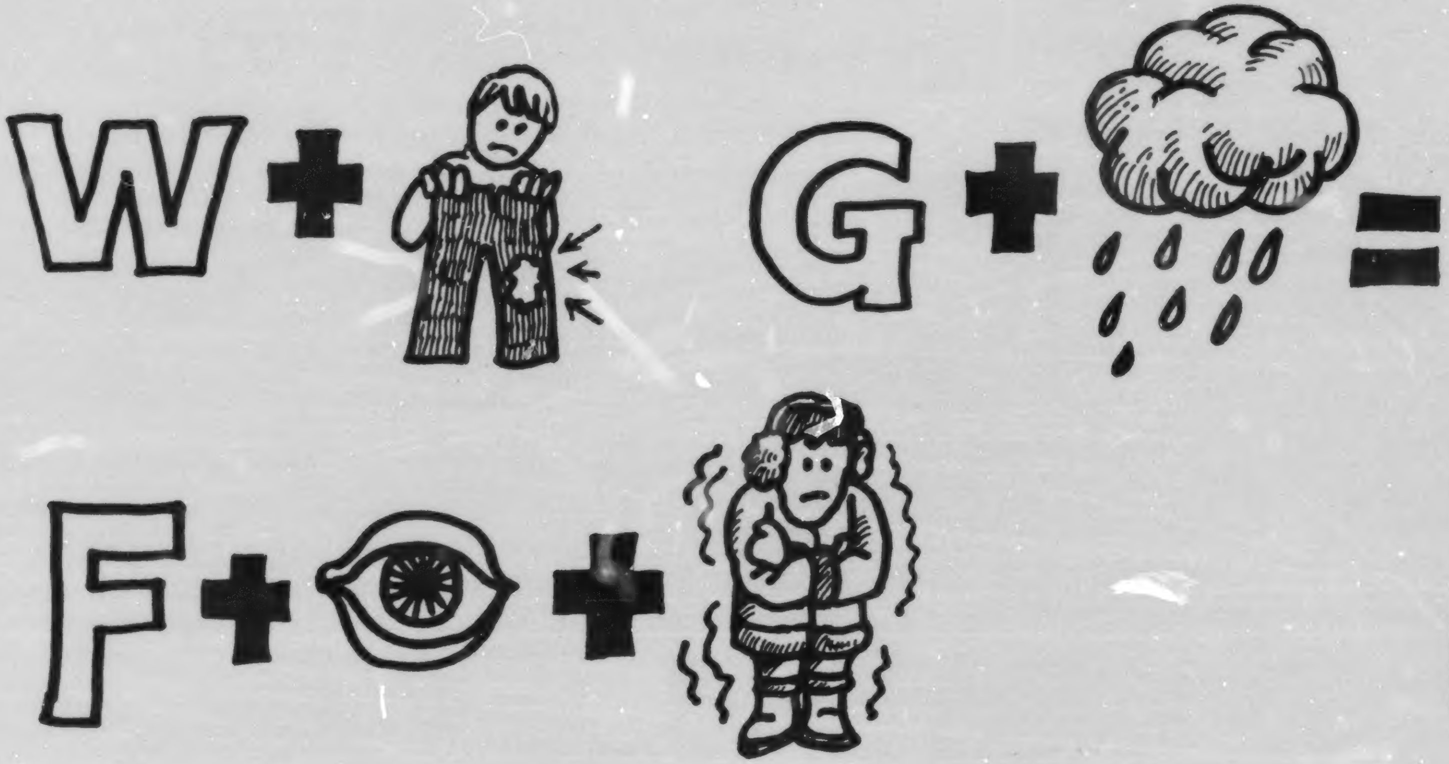
Silhouette of Girl's Head



Silhouette of Boy's Head



Rebus Puzzle



____________ ____________ = ____________

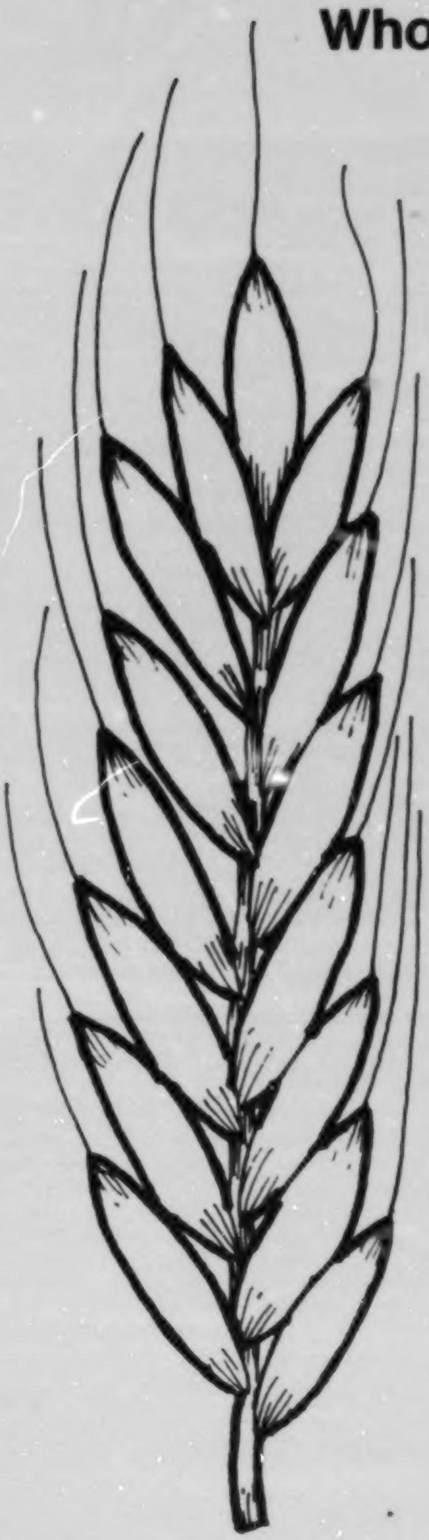
K-43

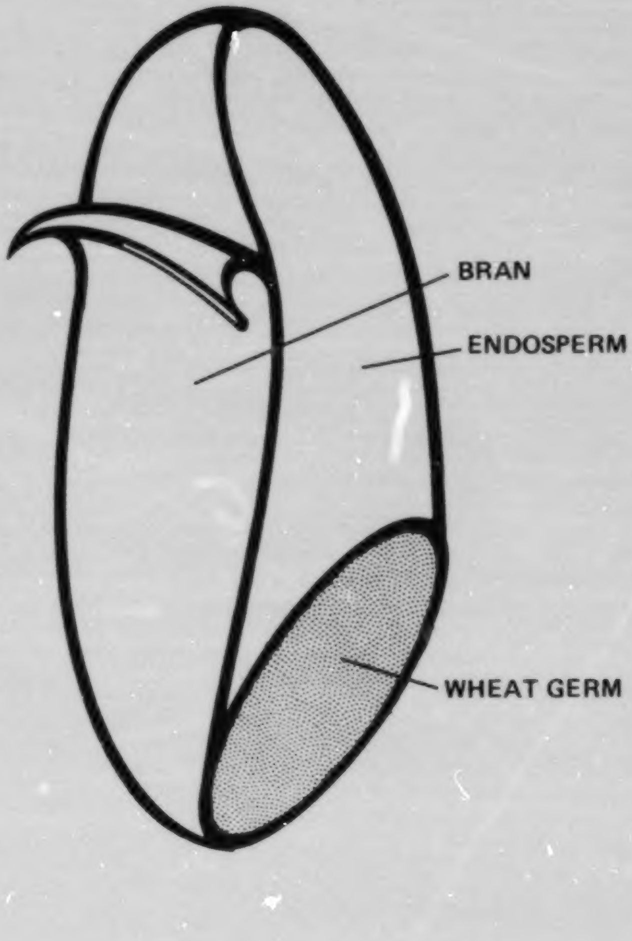
15—82382

Vocabulary Sheet

1. Whole grain: The small, hard seed of a cereal grass (Examples: wheat, oats, corn, barley)
2. Bran: The fiber-rich, outer husk of any grain
3. Germ: The inner seed of the grain
4. Dietary fiber: The indigestible carbohydrates in foods
5. Digestion: The breaking down of food to a state in which it can be used by the body
6. Enriched foods: Food to which some of the nutrients lost in food processing have been restored
7. Fortified foods: Foods in which specific nutrients, especially nutrients not originally present in the food, have been added
8. Gram: A metric unit of weight measure

Whole Wheat Kernel




BRAN
ENDOSPERM
WHEAT GERM

WHEAT KERNEL
ENLARGED CROSS SECTION

Cereal Box Labels

YUM-YUM

Wheat Flakes Cereal

Each serving contains 4 g dietary fiber, including 1 g (3% by weight) non-nutritive crude fiber.

Nutrition Information per serving

Serving size 1 ounce (28.4 g about ¾ cup) most alone or in combination with ½ cup vitamin D fortified whole milk.

Servings per package 12

	1 OZ. (28.4 g)	With ½ Cup Whole Milk
Calories	110	180
Protein	4 g	8 g
Carbohydrate	22 g	28 g
Fat	0 g	4 g

Percentage of U.S. Recommended Daily Allowances (U.S. RDA)

	1 OZ. (28.4 g)	With ½ Cup Whole Milk
Protein	6	5
Vitamin A	100	100
Vitamin C	100	100
Thiamin	100	100
Riboflavin	100	100
Niacin	100	100
Calcium	*	15
Iron	100	100
Vitamin D	100	110
Vitamin E	100	100
Vitamin B6	100	100
Folic Acid	100	100
Vitamin B12	100	110
Phosphorus	15	25
Magnesium	15	20
Zinc	10	10
Copper	10	10

*Contains less than 2% of the U.S. RDA of this nutrient.

Ingredients: Whole Wheat Flour, Defatted Wheat Germ, Sugar, Sodium Bicarbonate, Sodium Ascorbate (C), Vitamin E Acetate, Niacinamide, Reduced Iron, Ascorbic Acid (C), Vitamin A Palmitate, Pyridoxine Hydrochloride, B6, Thiamin Hydrochloride, (B1), Riboflavin, (B2), Vitamin B12, Folic Acid, and Vitamin D, BHA Added to Preserve Product Freshness.

Carbohydrate Information

	1 OZ. (28.4 g)	With ½ Cup Whole Milk
Starch and Related Carbohydrates	10 g	10 g
Sucrose and other Sugars	8 g	14 g
Dietary Fiber	4 g	4 g
Total Carbohydrates	22 g	28 g

Values by Formulation and Analysis.

Cowboy's Corn Crunch

Each Serving Contains 5 g (17.6%) Dietary Fiber Including 1 g (3.5%) Crude Fiber

Nutrition Information per Serving

Serving Size	2/3 CUP 1 OZ (28 g)
Servings per Container	16

	Per 1 OZ Cereal	With ½ Cup Vitamin D Fortified Whole Milk
Calories	110	190
Protein	2 g	6 g
Carbohydrate	24 g	30 g
Fat	1 g	5 g
Percentage of U.S. Recommended Daily Allowances (U.S. RDA)		
Protein	2	10
Vitamin A	*	2
Vitamin C	*	*
Thiamin	25	25
Riboflavin	15	25
Niacin	25	25
Calcium	2	10
Iron	25	25
Vitamin D	*	10
Vitamin B6	25	25
Folic Acid	25	25
Vitamin B12	15	25
Phosphorus	2	10
Magnesium	2	6
Zinc	15	15
Pantothenic Acid	20	25

*Contains less than 2% of the U.S. RDA for this nutrient.

Ingredients: Corn Flour, Corn Bran Flour, Sugar, Oat Flour, Salt, Coconut Oil, Sodium Bicarbonate, Calcium Carbonate, Reduced Iron, Artificial Color (Blue 1, Red 3, Yellow 5, Yellow 6), Niacinamide (One of the B Vitamins), Zinc Oxide (A Source of Zinc), Calcium Pantothenate (One of the B Vitamins). Pyridoxine Hydrochloride (One of the B Vitamins), Thiamine Mononitrate, Riboflavin, Folic Acid, Vitamin B12.

Carbohydrate Information

	Per 1 OZ Cereal	With ½ Cup Vitamin D Fortified Whole Milk
Starch and related carbohydrates	13 g	13 g
Sucrose and other sugars	6 g	12 g
Dietary fiber	5 g	5 g
Total	24 g	30 g

For additional nutrition information, write to consumer services.

Name ____________________

Cereal Label

Using your cereal box label, answer the following questions as they apply to one serving of your particular cereal:

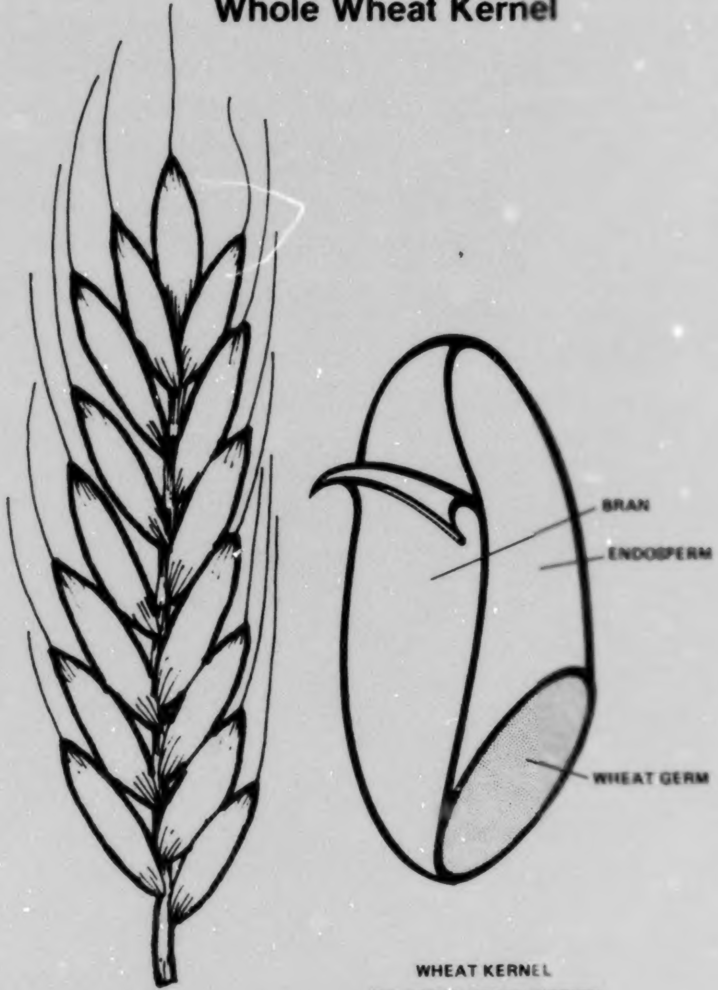
1. How many grams of dietary fiber does it contain?
2. What is the main ingredient in your cereal?
3. From what type of grain or grains is your cereal made?
4. Does your cereal contain any bran? (Remember that bran is part of the whole grain.)
5. Does your cereal contain any sugar?
6. Were any vitamins or minerals added to the cereal?
7. Does your cereal contain over 2 percent protein?
8. What percentage of the U.S. RDA for vitamin A is included?
9. What percentage of the U.S. RDA for thiamin is included?
10. What percentage of the U.S. RDA for zinc is included?
11. Which of the nutrients listed are below the 2 percent level?

Health Problems Thought to Be Associated with Low Fiber Diets

1. Cardiovascular disease
2. Cancer of the colon and rectum
3. Diverticulosis
4. Diabetes

High fiber diets provide bulk that aids the digestive process and can help reduce problems with constipation.

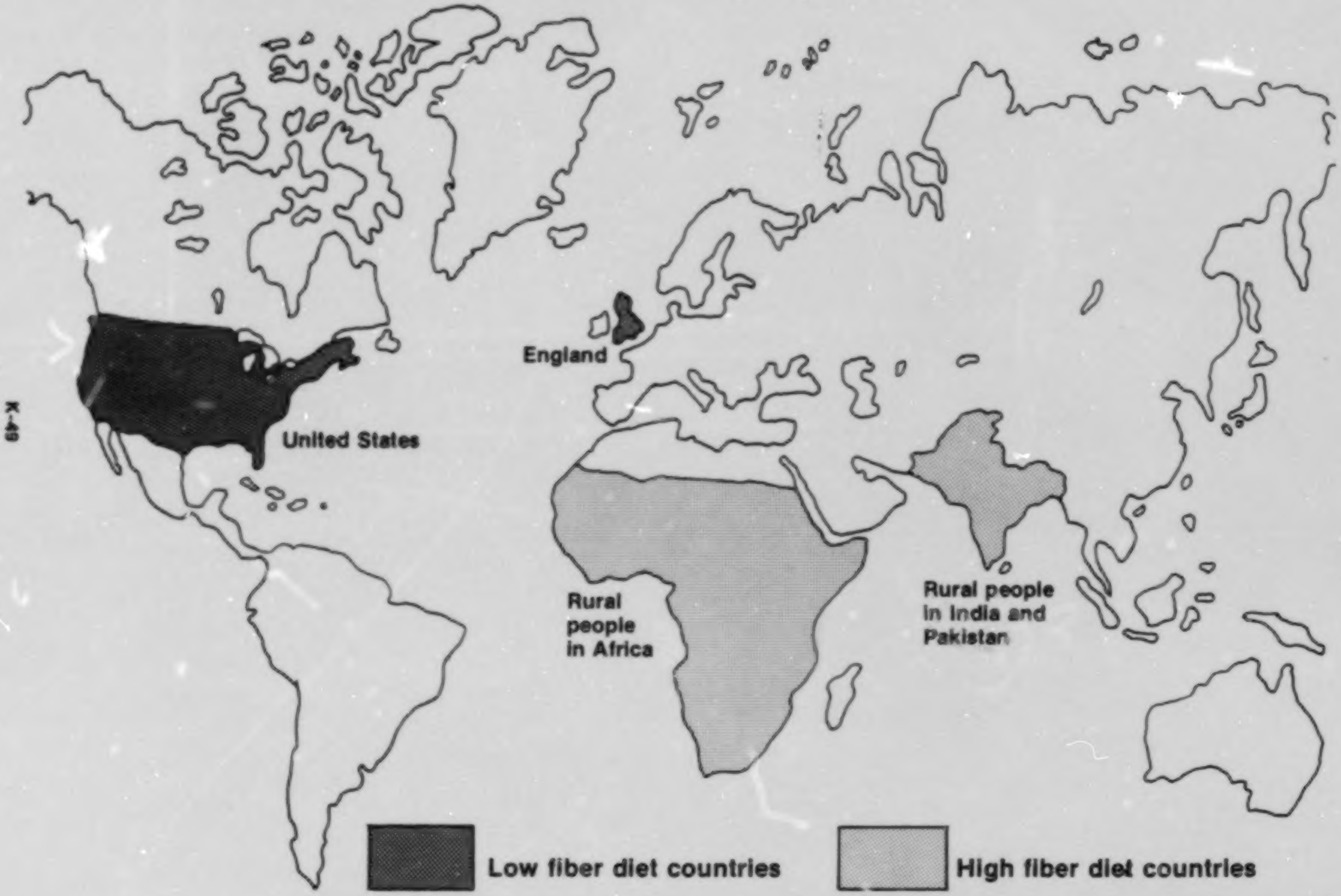
Whole Wheat Kernel



WHEAT KERNEL
ENLARGED CROSS SECTION

Countries with High and Low Fiber Diets

K-49


England
United States
Rural people in Africa
Rural people in India and Pakistan
▨ Low fiber diet countries
▨ High fiber diet countries

Name ____________________

Word Game

This game requires mental alertness as well as nutritional knowledge. A letter or two is added or subtracted either from the front of or the end of a well-known word to make another word. For example, add a letter to what we do with books and get the staff of life. *The answer is read* plus *B* equals bread.

1. Add a letter to a frozen substance and get one of the world's most common grains.

2. Add a letter to a word meaning *warmth* and get one of America's most common grains.

3. Add a letter to a direction and get a food substance which is used in making bread.

4. Add a letter to something that falls from the sky and get a food that is an important source of fiber.

5. Add two letters to a pronoun that means ownership and get the main ingredient in bread.

6. Add two letters to a heavenly body and get a substance found in bread and noodles.

7. Subtract a letter from something used to travel on water and get a type of grain.

8. Can you make one of your own?

Name ____________________

Whole Grain or Refined?

You and your friend have spent the morning at the skating rink. It is lunchtime, and you both go into the snack bar for a sandwich. Your friend orders a tuna sandwich on white bread. You order yours on whole wheat bread. Your friend asks you why you did not choose the white bread.

Give your answer, including one reason to add whole grains to your diet.

Name ____________________

Complementary Protein Vocabulary

Write in the definitions for the words listed below.

Protein:

High-quality protein:

Low-quality protein:

Complementary proteins:

Grains:

Legumes:

Seeds, nuts:

Complementary Protein Definitions

1. Protein:	This nutrient is found in all living things. It contains nitrogen and is responsible for the formation, maintenance, and repair of the body's tissues.
2. High-quality protein:	This is any protein source that contains all of the essential amino acids in amounts needed by the body to maintain life and to provide for normal growth.
3. Low-quality protein:	This is any protein source that contains limited amounts of one or more essential amino acids.
4. Complementary proteins:	These are foods containing protein that can be combined to produce high-quality proteins.
5. Grains:	These are plants belonging to the grass family. Also, they are one of the complementary plant protein groups (examples: rice, wheat, or oats).
6. Legumes:	These are vegetables whose pods split into two halves. Legumes are one of the complementary plant protein groups (examples: beans, peas, or lentils).
7. Seeds, nuts:	These are a wide variety of fruits which have edible kernels or seeds. They are one of the complementary plant protein groups (examples: sesame seeds, sunflower seeds, or cashew nuts).

Complementary Protein Cards

Dairy Products

Milk—whole, skim, buttermilk
Cheese—all kinds except cream cheese
Cottage cheese
Yogurt
*Ice cream

*Contains more fat and sugar than other foods in this group

Tryptophan	Isoleucine	Lysine	Sulfur containing amino acids

Legumes

Soybeans
Soybean products (grits, flour)
Dried beans and peas
Tofu
Lentils

Tryptophan	Isoleucine	Lysine	Sulfur containing amino acids
Cut this space out.			Cut this space out.

These cards were developed by: Bea Millslagie, Contra Costa County Department of Health.

Grains, Cereals, and Flours	**Tryptophan**	**Isoleucine**	**Lysine**	**Sulfur containing amino acids**
All breads Rice Pasta products Cornmeal flours—wheat, rye, oat, corn Barley Oatmeal Bulgur Wheat bran Wheat germ Noodles Millet Cereals Products made with grains and cereals		**Cut this space out.**	**Cut this space out.**	

Nuts and Seeds	**Tryptophan**	**Isoleucine**	**Lysine**	**Sulfur containing amino acids**
Nuts—almonds, walnuts, cashews, brazil, and so forth Seeds—squash, pumpkin, sesame, sunflower *Peanuts and peanut butter *Amino acid strengths are more similar to nuts and seeds than are legumes, even though peanuts are classified as legumes.		**Cut this space out.**	**Cut this space out.**	

Name ____________________

Protein Sentences

Fill in the blanks so that each sentence makes sense. Use the complementary proteins vocabulary words.

1. Wheat, barley, rice, and oats are examples of ____________.

2. ______________________ are nonmeat proteins which, when combined in proper proportions, produce high-quality proteins.

3. Sesame seeds, sunflower seeds, and cashews are examples of ______________ and ______________.

4. ______________ is a nutrient found in all living things. It contains nitrogen.

5. Beans, peas, and lentils are examples of ______________.

6. ______________________ protein is any protein that does not contain all the essential amino acids in the amounts needed by the body.

7. ______________________ protein is any protein that *does* contain all the essential amino acids in the amounts needed by the body.

Name ____________________

Plant Sources of Protein

Legumes	Grains	Seeds/Nuts

Plant Sources of Protein List

Using your plant protein chart, take the plants listed below and write them down in the appropriate column on the chart.

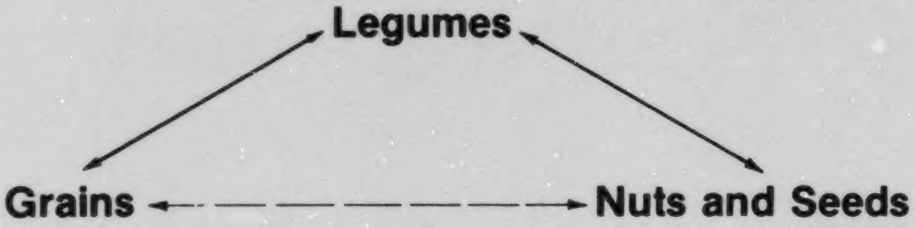
Barley
Black-eyed peas
Soybean flour
Black walnuts
Rye
Oatmeal
Sesame seeds
Pistachio nuts
Garbanzo beans
Millet
Pumpkin and squash seeds
Lima beans
Lentils
Cashews
Spaghetti
Cornmeal
Egg noodles
Macaroni
Peas
Cornbread
Mung beans
Wheat bran
Pignolia nuts
Kidney beans
Buckwheat
Soybeans
Sesame meal
Almonds
Soybean curd (tofu)
Navy, red, white, pinto, and black beans
Peanuts
Wheat flour
Peanut butter
Sunflower seeds
Rice
Bulgur wheat
Wheat germ

Plant Sources of Protein Chart

Legumes	Grains	Seeds/Nuts
Soybean curd (tofu)	Wheat: flour, germ, and bran	Pumpkin and squash seeds
Soybean flour	Rye	Pignolia nuts
Soybeans	Oatmeal	Sunflower seeds
Mung beans	Buckwheat	Cashews
Peas	Bulgur wheat	Sesame seeds
Lima beans	Cornmeal	Sesame meal
Black-eyed peas	Barley	Pistachio nuts
Garbanzo beans (chick-peas)	Millet	Black walnuts
Lentils	Rice	Almonds
Kidney beans	Egg noodles	Peanuts*
Other common beans (navy, red white, pinto, black)	Spaghetti or macaroni	Peanut butter*

*Peanuts are classified botanically as legumes but have amino acid strengths more similar to nuts and seeds.

Complementary Protein Combinations



Examples:

Legume/Grain

Tofu and rice

Pea soup and cornbread

Baked beans and whole wheat bread

Beans and rice casserole or soup

Tortillas and beans

Lentil and rice soup

Legume/Nuts and Seeds

Salad with kidney beans and sunflower seeds

Dip using garbanzos and sesame seeds

Snack made of mixed seeds and soy nuts

Bean soup with sesame seeds

Casserole with lentils and sesame seeds

Grains/Nuts and Seeds

Only some foods in these groups complement each other, such as sesame seeds and rice. Otherwise, add legumes or dairy products to increase protein quality, such as drinking milk with a whole wheat bread and peanut butter sandwich.

Remember: Animal proteins (even small amounts) can be added to plant proteins to increase the quality.

Examples:

Cheese sandwich

Whole grain cereal and milk

Rice-cheese casserole

Spaghetti and cheese

Beans and cheese

Beans and eggs

Rice pudding (with milk)

Peanuts and milk

Toast and eggs

Name ________________

Complements from Protein

Match the words in the first column with words in the second column.

1. __Seeds and legumes
2. __Sesame seeds plus
3. __Legumes plus
4. __High-quality protein
5. __Low-quality protein

a. Legumes (for example, beans) equal high-quality protein.
b. Grains equal high-quality protein.
c. Contain essential amino acids in amounts needed by the body
d. Complementary proteins
e. Limited in one or more of the essential amino acids

Fill in the names of specific foods that would complete the complementary food groups.

6. ____________ with ____________ forms a complementary protein group.
7. ____________ with ____________ forms a complementary protein group.
8. ____________ with ____________ forms a complementary protein group.
9. ____________ with ____________ forms a complementary protein group.
10. ____________ with ____________ forms a complementary protein group.
11. ____________ with ____________ forms a complementary protein group.

Name ______________

What Is Your Complementary Protein IQ?

Match the words in the first column with the words in the second column.

1. __ Complementary proteins
2. __ Low-quality proteins
3. __ High-quality proteins
4. __ Essential amino acids
5. __ Legumes
6. __ Grains
7. __ Seeds
8. __ Examples of some nonmeat sources of high-quality proteins

a. Wheat, rye, oats
b. The nine amino acids that the body must get from food sources
c. A protein limited in one or more of the essential amino acids
d. Sesame, sunflower
e. Two or more nonmeat proteins are combined in the proper proportions to produce high-quality proteins.
f. Cheese, yogurt, eggs
g. Beans, peas, lentils
h. A protein with all the essential amino acids in the amounts needed by the body

True or False: Put a *T* before the sentences that are true and an *F* before the sentences that are false.

9. __ Examples of grains are oats, wheat, and corn.
10. __ Examples of legumes are beans, cheese, and spinach.
11. __ Rice and beans are complementary proteins.
12. __ Meat is the only source of high-quality proteins.

Fill in: List specific foods containing complementary proteins.

13. __________ with __________ forms a complementary protein group.
14. __________ with __________ forms a complementary protein group.
15. __________ with __________ forms a complementary protein group.

Name ______________

Exploring Values About Food Choices

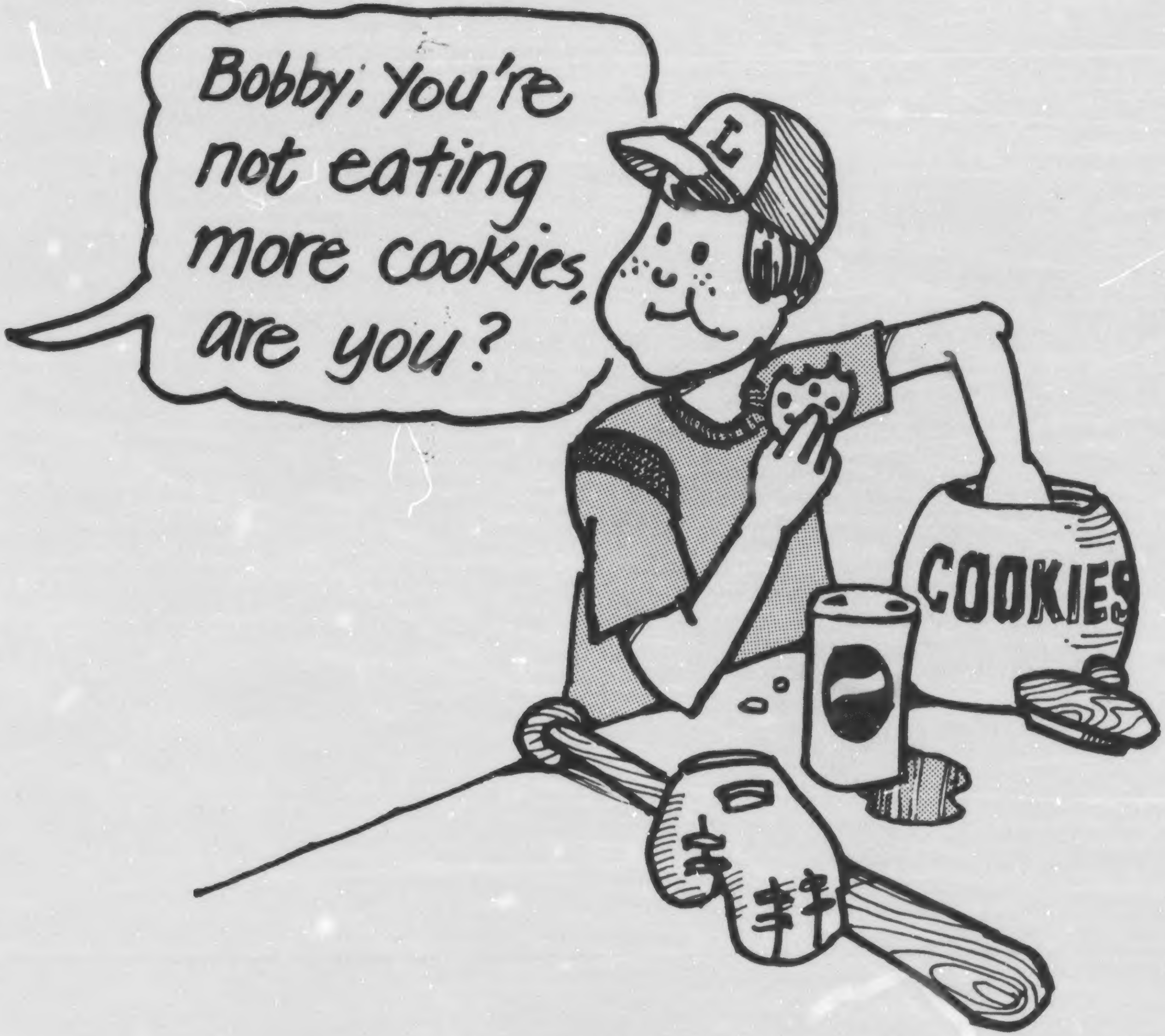
Food Items I Chose to Eat	Reasons for choosing food										
1.											
2.											
3.											
4.											
5.											
6.											
7.											
8.											
9.											
10.											
Total											

K-63

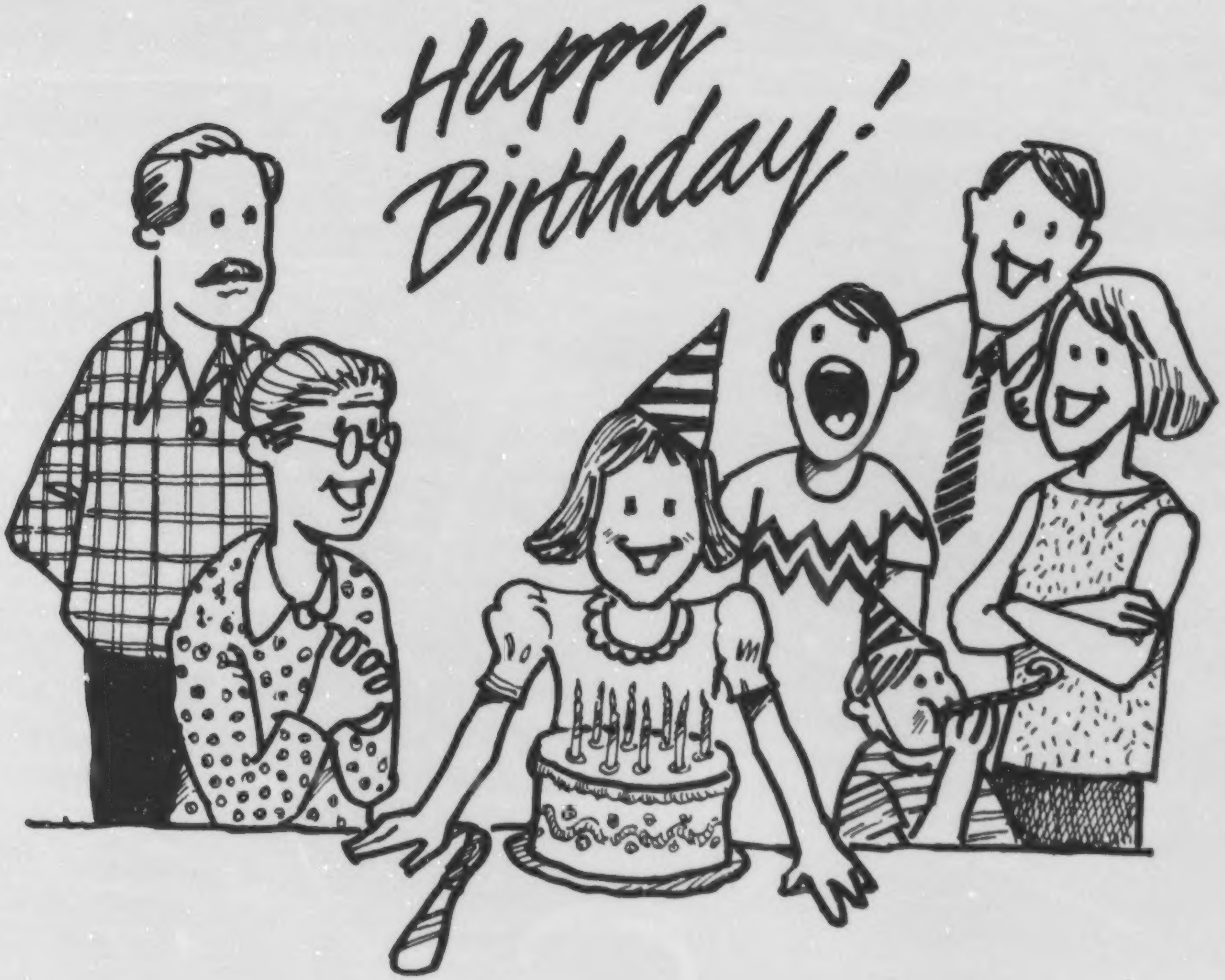
Identical Value Statement

One of my values about food is its ______________

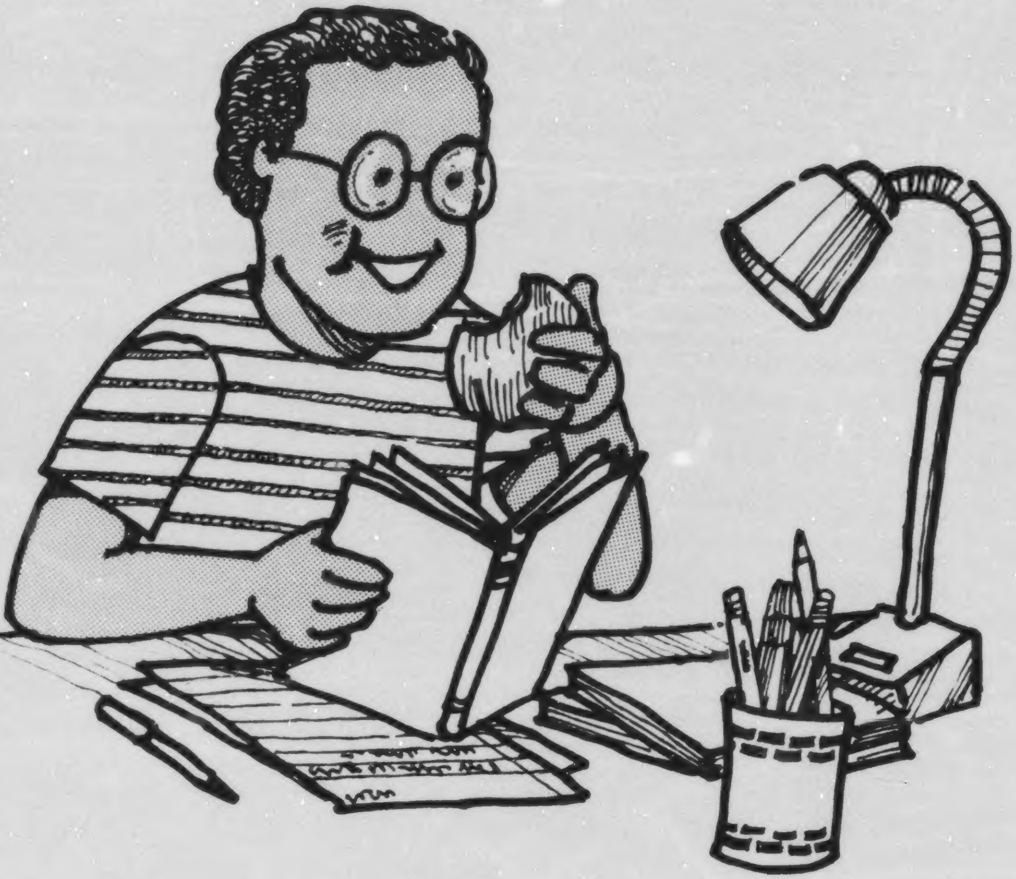
K-64


Bobby, You're not eating more cookies, are you?
L
COOKIES

Transparency Master One

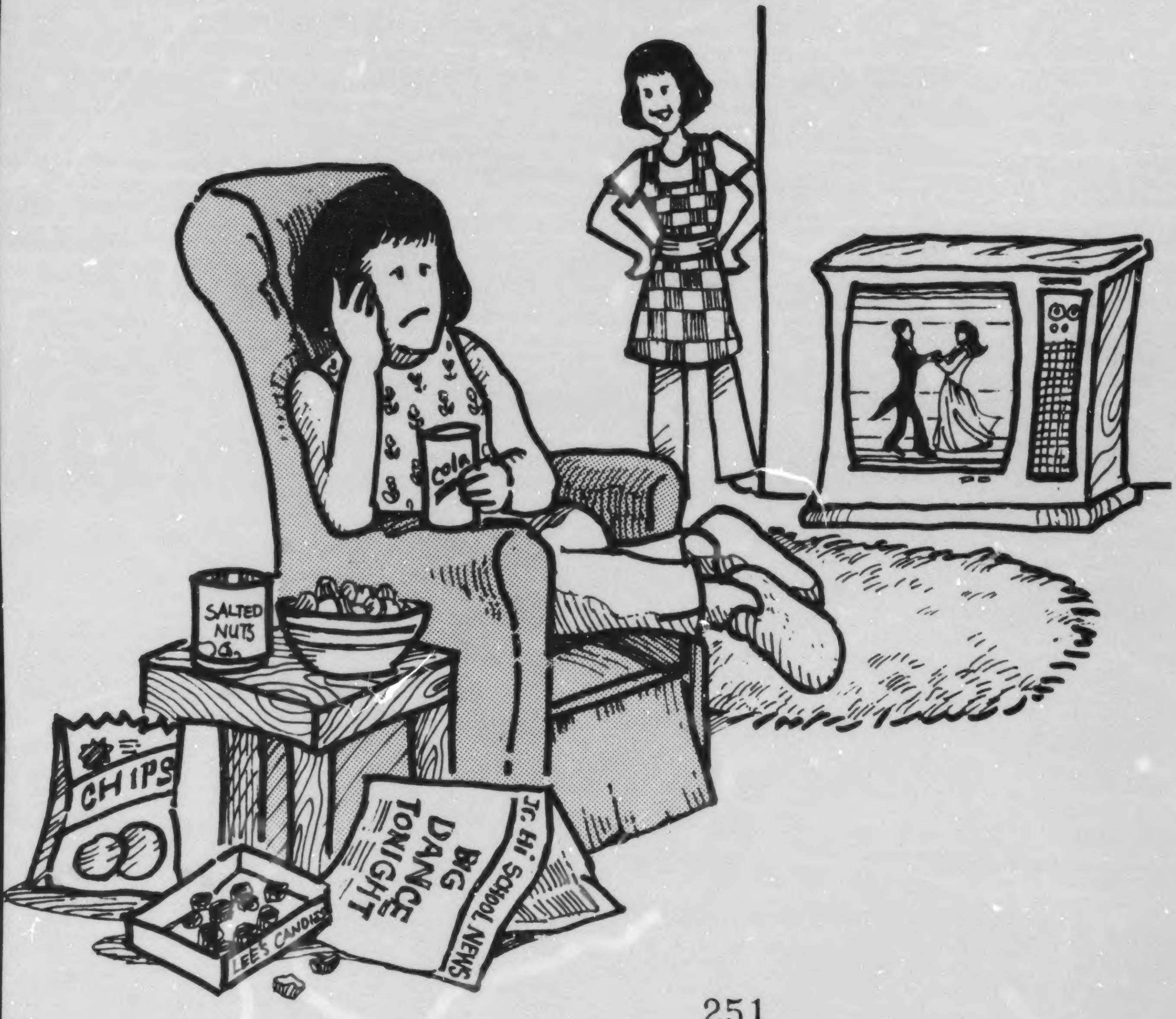

Happy Birthday!

Transparency Master Two



Transparency Master Three

Transparency Master Four


cola
SALTED NUTS
CHIPS
Jr. Hi SCHOOL NEWS
BIG DANCE TONIGHT
LEE'S CANDIES

Name ____________________

Eating Behavior

Listed below are descriptions of four situations involving eating. Read each description and identify the emotion and the eating behavior in the space provided. Tell how the two factors are related.

Situation A

Cathy is in a department store looking for an outfit to buy for the valentine dance at the school. She finds a pair of jeans in her usual size; but when she tries them on, she cannot button the waistband. Frowning, she puts the jeans back on the rack. Cathy eats salad, fresh fruit, and cottage cheese for lunch all week.

Emotion: ____

____

Eating behavior: ______________________________________

____

Relationship: (What did the way Cathy feel have to do with the way she ate?) ____

____

Situation B

John is in training for the B team's football tryouts. Every day he lifts weights, runs five miles, and does sit-ups. He also watches his diet. John goes to a party on Friday night. A table is set up with chips, sour cream dip, pretzels, crackers, salted nuts, cola drinks, and dishes of candy. John refuses to eat at first, but it bothers him to watch everyone else eat. John fills a plate with food and eats.

Emotion: ____

____

Eating behavior: ______________________________________

____

Relationship: (Why did John eat at the party?) __________________

____

____

Situation C

Sylvia exchanges angry words with her mother over some household chores. Sylvia does what her mother tells her to but eats a whole box of cookies while working.

Emotion: ______________________________

____

Eating behavior: ______________________________

____

Relationship: (Why did Sylvia eat a whole box of cookies?) ______

____

____

Situation D

Thomas is invited to his coach's home for dinner. He is thrilled when he arrives at the coach's home and is warmly greeted by the coach and his family. The coach and his wife barbeque hamburgers and serve them with corn on the cob, potato salad, and homemade ice cream for dessert. Thomas dislikes potato salad; yet, he eats everything offered to him and enjoys the meal thoroughly.

Emotion: ______________________________

____

Eating behavior: ______________________________

____

Relationship: (Why did Thomas eat potato salad even though he dislikes it?) ______________________________

____

____

Word Cinquains

Word cinquains about emotional feelings and eating patterns

Pattern:

First line: *One* word that names an *emotional feeling*

Second line: *Two* words that define further or describe the *emotional feeling*

Third line: *Three* words that express an eating behavior associated with the *emotional feeling*

Fourth line: *Four* words that express a personal attitude toward the *eating behavior*

Fifth line: *One* word that sums up, restates, or supplies a synonym for the emotional feeling

Cinquain Examples

1. Depression
Dark, lonely
Eating away problems
Solving problems with food
Despair

2. Joy
Bright, beautiful
Sharing a meal
Celebrating with loved ones
Happiness

Mary's Problem

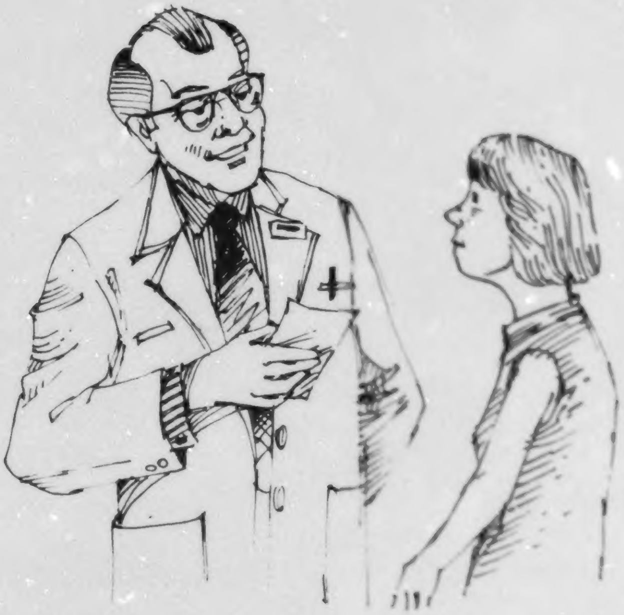
Mary is a good student who works hard to maintain top grades. Extracurricular activities are also important to her. She participates in student government, writes for the school newspaper, and is secretary of the French club. Recently, she began gymnastics with her best friend Catherine.

Mary's grades have begun to drop. She is feeling a great deal of pressure to maintain excellence in school, in school activities, and in her social life.

Soon Mary begins to feel stomach pains after eating. Consequently, she does not eat for long periods of time. When she does eat, she eats too quickly. She goes on binges.

Mrs. Moore, Mary's mother, is very worried about her daughter's dropping grades, her irregular eating habits, and her increasing health problems. Mary is upset and feels that she is being constantly nagged by her mother. Tensions between the two have increased.

Mrs. Moore sends Mary to the doctor. Mary confides to him that she has school pressures and that her grades are dropping. The doctor tells Mary that her school pressures and heavy extracurricular activities are causing digestive upsets. He prescribes medicine to help alleviate her stomach pains. He emphasizes that she should modify her school and extracurricular activities to relieve stress and try to develop more healthful eating habits.



Name ______________

Influences on Eating Behavior

I. Identify whether the following eating behaviors are a result of appetite or hunger. Write *hunger* or *appetite* in the blank in front of the question.

__________ 1. Feeling light-headed during a morning when you have skipped breakfast

__________ 2. Making room for a second helping of your favorite dessert

__________ 3. Eating pizza with your friends after a Friday night movie

__________ 4. Hearing your stomach rumble right before lunch

__________ 5. Eating a doughnut on the way to school just after completing a big breakfast

__________ 6. Craving a chocolate milkshake while you are watching television

__________ 7. Eating during a holiday meal until you are stuffed

__________ 8. Feeling tired after being in a sports competition for three hours where no eating or snacks were allowed

II. Identify the following as being an emotional feeling (EF) or an eating behavior (EB). Write the abbreviation in the blank next to the questions.

__________ 1. Snacking

__________ 2. Happiness

__________ 3. Dieting

__________ 4. Overeating

__________ 5. Stress

__________ 6. Depression

__________ 7. Loneliness

__________ 8. Anger

__________ 9. Feasting

__________ 10. Love

III. Below is a description of an open-ended situation. Read the statement and complete it. Give an emotional feeling and an eating behavior which might result from the situation. Tell how the factors might be related.

Situation:

John is an excellent mathematics student. He studies hard and does all the assignments and homework. Mathemathics is John's last class of the day. The teacher returns a unit test, and John is shocked to see a red "FAIL" on the top of his paper. When the bell rings, John goes straight home. John feels ______________________. His eating behavior might be ____

____

How is his eating behavior related to his emotional feelings?

IV. Read the situation about Mary. In the space provided identify at least two emotions and an eating behavior and describe the relationship between the two factors in the space provided.

Situation:

Mary is running for student body president. She and her friend Mike have organized the campaign and have made posters and tags urging the students to vote for her. Mary's strongest opponent is Jesse, the most popular boy at school. She is very busy during the last days before the election and has very little time to eat lunch; so she eats chips and drinks colas during the day. The night before the election, Jesse calls Mary to tell her that he thinks he has won already because he is so much more popular than she is. Mary hangs up the telephone. After dinner that night, she eats two bowls of ice cream, a package of cookies, and a bowl of chocolate pudding. She still feels like eating more food.

Put yourself in Mary's place and identify the following:

Emotions: ____

____

____

Eating behaviors: ____

____

____

Relationship: (Why did Mary want to eat more snacks?) ____________

____

____

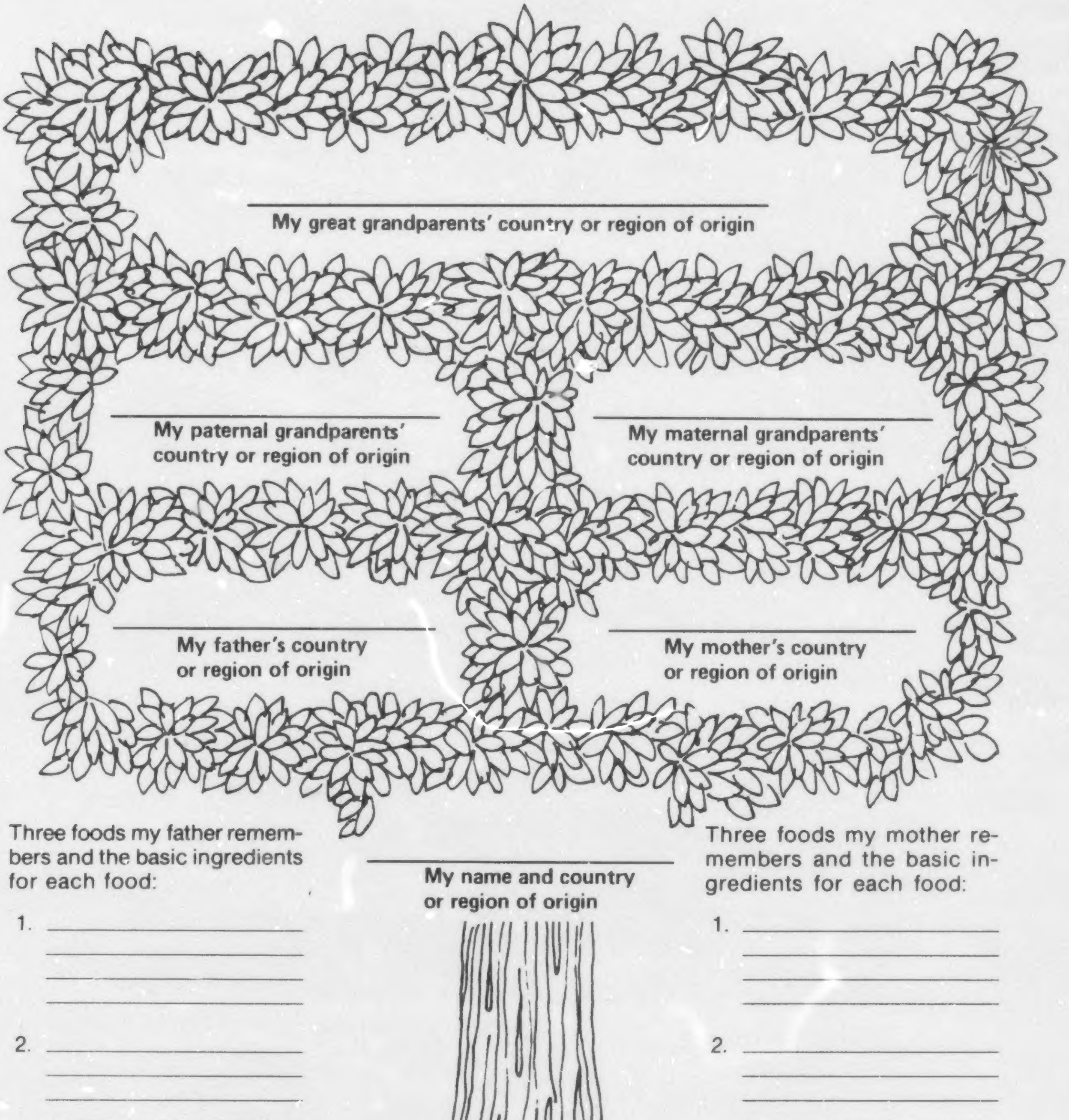
Name ______________

Food Shield Comparison

	Myself	My Study Partner
1. What was your favorite food as a child?	______	______
2. What is your favorite food now?	______	______
3. What is your favorite cultural food from your background?	______	______
4. What is the cultural background?	______	______
5. What foods do you have for celebrations?	______	______
6. What foods do you eat when you are sick?	______	______
7. What is your favorite cultural food that you order when you eat in a restaurant?	______	______
8. What cultural group does it come from?	______	______

Name ______________________

My Culinary Roots



____
My great grandparents' country or region of origin

____
My paternal grandparents' country or region of origin

____
My maternal grandparents' country or region of origin

____
My father's country or region of origin

____
My mother's country or region of origin

____
My name and country or region of origin

Three foods my father remembers and the basic ingredients for each food:

1. ______________________
2. ______________________
3. ______________________

Three foods my mother remembers and the basic ingredients for each food:

1. ______________________
2. ______________________
3. ______________________

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K-77

Cultural Food Choices

Nutrient	Chinese	Italian	Southern United States	Mexican
Protein	Tofu (bean curd) Pork Beef Duck Lamb Chicken Eggs Seafood	Pork sausage Veal Beef Cheese (parmesan, mozzarella) Eggs Poultry	Pork (ham, ribs, chops) Chicken Beef Dried peas and beans Organ meats (chitterlings) Peanuts	Beef Chicken Pork Dried beans (pinto, pink, black, red kidney) Eggs
Carbohydrate	Rice Noodles (various shapes and sizes) (Wonton noodles are square.) Steamed breads Dumplings	Pasta (spaghetti, pastina, vermicelli, fettucini) Breads Rice	Cornbread Cornmeal Grits Biscuits Rice	Tortilla (corn and flour) Rice Dried beans Masa (cornmeal dough)
Fats	Vegetable oil (sesame oil)	Olive oil Butter Salt pork Lard Cheese	Bacon Lard Salt pork	Lard Vegetable oil Avocados Chocolate Cheese
Vitamin A	Broccoli Asparagus Dark green leafy vegetables	Tomatoes Peppers (red and green) Romaine, endive, and other dark green leafy vegetables Carrots	Greens (turnip, collard, kale, spinach, mustard, and others) Sweet potatoes, yams Okra	Chili peppers (more than 50 varieties) Papayas Mangoes Other fruits and vegetables
Vitamin C	Cabbages (bok choy, celery, cabbage) Broccoli Asparagus Mandarin oranges	Tomatoes Peppers (red and green) Green leafy vegetables	Okra Greens (turnip, collard, kale, spinach, mustard, and others) Sweet potatoes	Tomatoes Limes Chili peppers (more than 50 varieties) Fresh fruits (papayas, mangoes, guava, oranges)
Calcium	Tofu Shellfish Green leafy vegetables Sesame seeds Broccoli	Cheese Milk Green leafy vegetables	Buttermilk Greens (turnip, collard, kale, mustard)	Cheese Milk Flan (custard)
Iron	Meats Egg yolks Shellfish Broccoli Dark green vegetables	Pork and other meats Spinach and other dark green leafy vegetables Eggs	Liver Blackstrap molasses Dried beans and peas Dark green leafy vegetables	Dried beans Beef Chicken Pork Egg yolks

Name ______________________

Menu Evaluation

Country of Origin: ______________________

Foods Selected	Protein	Carbohydrates	Fats	Vitamin A	Vitamin C	Calcium	Iron

Name ____________________

Foods for Holiday Celebrations

Information from: ____

1. On what holidays does your family serve a special meal?

   Religious holidays:

   ______________________________ ______________________________

   ______________________________ ______________________________

   Family celebrations:

   ______________________________ ______________________________

   ______________________________ ______________________________

   Other holidays: (such as Halloween, Thanksgiving, Christmas, Fourth of July)

   ______________________________ ______________________________

   ______________________________ ______________________________

2. Select one holiday meal and list the foods that are served on that day:

   ____

   ____

   ____

3. Check three types of foods that are most important in your holiday meals:

   __________ Meats ________ Desserts _____ Vegetables

   _________ Salads ______ Beverages _________ Breads

4. Describe any special ways in which your holiday meals are served:

   ____

   ____

   ____

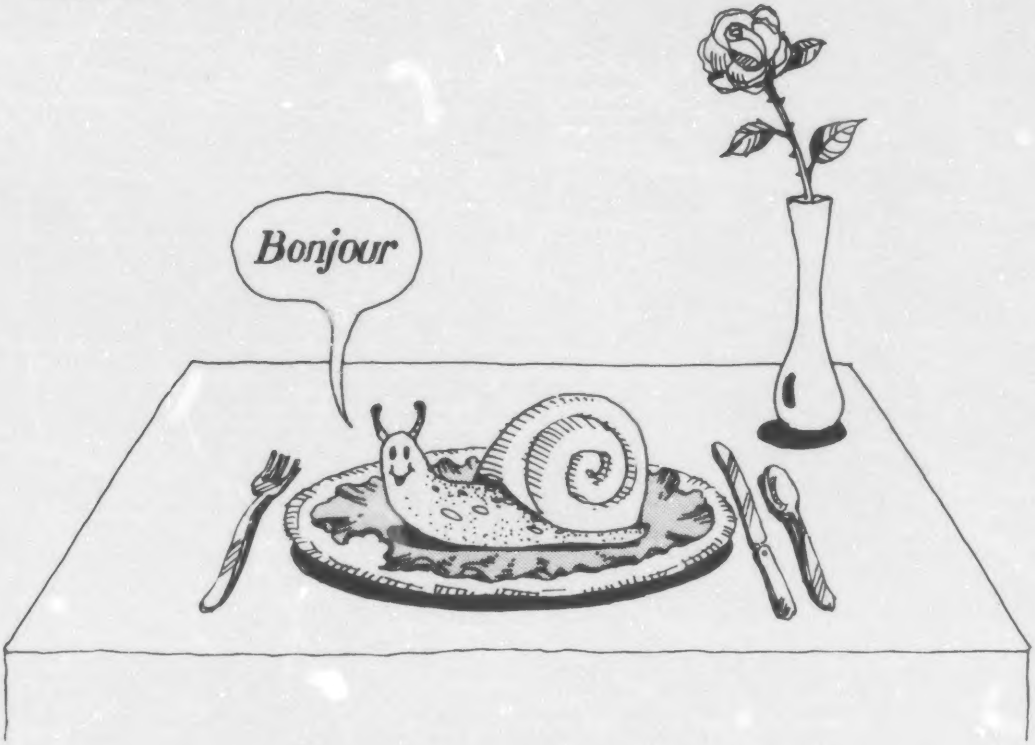
Eating Other Foods

1. Fried locusts are considered a delicacy by Middle Eastern Nomadic tribes. You are offered one as a gesture of friendship. Will you try it?

2. Snails (escargot) are on the menu at the French restaurant you are visiting with your parents. Will you try them?

3. You learn from your grandmother that part of your Swedish heritage is eating head cheese, a cold cut made from the head of the pig. Are you willing to adopt this tradition?

4. You are at an Oriental food bazaar, and raw fish, octopus, and squid are available. Will you try them?



Name ____________________

Food-Related Careers Investigation

Investigate a career in one of the following areas: consumer food advocacy, agriculture, or food services.

Your investigation should include a minimum of one interview with a person in the chosen career. Include the following information in your report:

1. Job title: ______________________________ Category: __Food advocacy
   ____ __Agriculture
   __Food service
2. Job qualifications:
   a. Education required: ____
   ____
   b. Skills required: ____
   ____
   c. Experience required: ____
   ____
   d. Other requirements: (Specify, for example, physical requirements, special training, or special license.)
   ____
   ____
3. Description of work involved (duties, responsibilities):
   ____
   ____
4. Normal working hours: ____
   ____
5. Salary or wages: ____

6. Advantages and disadvantages of the job: (For example, consider employment outlook, advancement (promotional) opportunities, benefits, travel involved, environment, job satisfaction.)

Extra Credit:

Describe a typical day on the job.

Name ____________________

How Much Do They Earn?

Solve the following questions dealing with income in various occupations in food service:

I. When Charles looked for a summer job, he found he could start as a meat cutter's apprentice. Meat cutters in his town received $9.95 per hour. Most journey-level cutters work 40 hours per five-day week, 52 weeks per year. They receive 15 days paid vacation. Their medical benefits are paid by their employer.

1. How much does a journey-level cutter make per week? ____________
2. How much does a meat cutter make per year? ____________________
3. Charles found he would start work at 60 percent of the journey-level cutter's wage. What was his hourly wage?

   ____

4. How much would he make in a 40-hour week? __________________

II. Larry has worked after school as a dishwasher for the last six weeks. He works three hours a night, four days per week, and on Saturday he works six hours. Larry's boss pays him $3.35 per hour.

1. How many hours does Larry work in one week? ______________
2. How much does Larry earn per week? ______________________
3. How much has Larry earned in the six weeks he has worked? ______
4. Larry's boss withholds 18 percent of his salary for income tax. How much is withheld per week?

   ____

5. Last weekend, on Saturday, Larry received 20 percent of the tips left at the restaurant where he worked. The total tips were $57.50. How much did he get from this?

   ____

III. Mrs. Johnson is a manager of the cafeteria. She works an average of 7½ hours a day during the school year. Her employer deducts tax, insurance, social security, and medical benefit payments that total $115 per paycheck. After these deductions, she receives a take-home paycheck of $685.20 per month for ten months.

1. If there are 31 weeks in the school year and Mrs. Johnson works five days per week, how many hours does she work per year?

   ____

2. What is Mrs. Johnson's total take-home income for the year?

   ____

3. If Mrs. Johnson were paid by the hour, how much would she receive per hour?

   ____

4. What would Mrs. Johnson's total take-home pay be each month if she were paid on a 12-month basis?

   ____

5. What is the total amount of money deducted from Mrs. Johnson's check for the year? ______________________________
6. How much is Mrs. Johnson's total income for the year? __________

Name ____________________

Food Career Riddles

Have you given much thought to people who toil
To bring you the food you fry, bake, or broil?
Are you aware of the workers who give you delicious
Food that looks tasty but is also nutritious?
Read each of the riddles and their names you'll soon know.
Match the careers on the right with each riddle below.

____1. Plants may grow wild and critters roam free,
But how does food get to your table?
Crops need to be tended and animals raised
By someone hard-working and able.

____2. I'm really a sort of magician
Working wonders with pheasant or fish.
With eggs I'll prepare a simple repast
Or dream up a fancy French dish.

____3. Machines on a farm perform many tasks.
They milk, they plow, they harvest, they sow.
Without my fine skills to repair and maintain,
The machines on a farm would not go!

____4. With a curious eye I see dirt in the ground.
I question, I study, I examine with care.
And I hope that the key to much better crops
Is exactly what I will find there.

____5. Do you have a question about nutrition?
Just give me a call.
I'll help you with your own special diet needs
and provide nutrition information for all.

____6. I keep a watchful eye on laws and regulations.
When it comes to food issues,
my job is to protect and inform you
so that what you eat is nutritious.

A. Chef
B. Consumer food advocate
C. Farmer
D. Soil scientist
E. Dietitian
F. Agricultural mechanic

Dear Annie Letter

Dear Annie:

Help! I cannot decide what to do. Here I am with three chances for a summer job. I guess I am pretty lucky to have three possibilities, but that is my problem. I cannot decide which job to take.

My parents think I should work at Billy's Restaurant just around the corner. Lots of other kids want the job. I would work as a waiter and make a lot of money. I need the money because I want to buy a car, and then I'm planning for college next year. Making lots of money at that job sounds great!

The second job is at a ranch. My best friend is going to work there, and we would be working together. The job mainly requires working outdoors, doing general cleanup. More important, though, we would be supervising and teaching horseback riding, swimming, and hiking. We would also help with meal preparation. The pay is all right, even if some of the work there is kind of hard. Lots of other kids our age work there, too. What a great summer! I can be with someone I like at a beautiful place. But I probably would not have very much money at the end of the summer.

There is another job I could probably get. I am good at writing and talking to people. The local newspaper has been doing a column for teenagers about food. Articles appear about the best places for young people to eat, recipes for teenage soul food, what kinds of foods teenagers like best, and what diets are best. The newspaper would hire me during the summer to help write these articles. The pay is less than I could earn as a waiter, but I would be doing something I am really good at. And I would learn a lot about newspapers.

Which job do you think I should try for?

Undecided

Name ________________

Which Job Would You Choose?

Job A: Hamburger Heaven

A Hamburger Heaven stand is just a few blocks from your house. It is a very popular place. You can walk or ride your bike to work. This job requires that you write orders for and cook and serve a variety of fast foods: hamburgers, hot dogs, french fries, and onion rings. You will collect money and make change for customers. Most of the other employees are about your age, are friendly, and seem to get along well together. You have a chance to make many new friendships. The pay is only the minimum wage, but it is steady. You do not usually get tips from customers. The hours are short; so you will have time to enjoy other activities during the summer. Because weekends are the busiest times, you have to work Saturday and Sunday. But you have two days off a week. During busy times you will have to work quickly and keep smiling when customers are impatient and bad-tempered. If you do this job well, you can probably work there a few hours a week throughout the school year.

The following are possible values:

- A convenient location
- Short work hours to provide time to enjoy summer activities
- Opportunities to form lasting friendships
- Opportunities to meet many people
- An opportunity for steady work for a long time

Job B: Posh Restaurant

The Posh Restaurant is about ten miles from your home. You can get to work by sharing rides with another employee. You will work as a waiter or waitress, serving lunch and dinner. Tips at this restaurant are great! You will make about three times as much money as you would at another kind of job. The Posh Restaurant is famous because of its gourmet food and for the beauty with which it is served. Because of this, your bosses, the cooks, and the dining room manager expect you to be very careful and good at your job. People who do not do well are often fired. You will be taught the elegant way to set a table and to serve food. After working at this restaurant, you will probably be able to get a job at any other restaurant. You might work your way into higher paying jobs in the restaurant business.

The following are possible values:

- Opportunities for advancement
- A high salary and a chance to make much money from tips
- A chance to learn career skills
- Rewards for hard work and ability
- A chance to use special talents

Job C: Happy Hotel

The Happy Hotel is a family kind of resort. It is a pretty place with its own pool and a lake for boating located about 50 miles from your home. Young people who work there live in cabins or bunkhouses during the workweek and sometimes come home for weekends. Guests all eat together in a huge dining room and have snacks around the pool. There is also a snack shack down by the lake. You can choose from a variety of jobs: helping the cooks prepare snacks and main courses in the kitchen, carrying food to the tables and serving the guests, or working outdoors weeding and watering the gardens, where fresh vegetables are grown, and so forth. Your salary will be good, but the hours are long. Sometimes you will be expected to start work at dawn, and at other times you will work until almost midnight when there is a party or special event. You think that maybe someday you would like to manage or even own a resort of your own, and here is a chance to learn about the business.

The following are possible values:

- Pleasant surroundings
- Opportunity to prepare for long-range goals and to plan for the future
- A life-style that includes being with many people
- Opportunities for advancement
- A variety of activities
- A chance for independence, being on your own

Some of my values about jobs are that the job: ______________________________

____

____

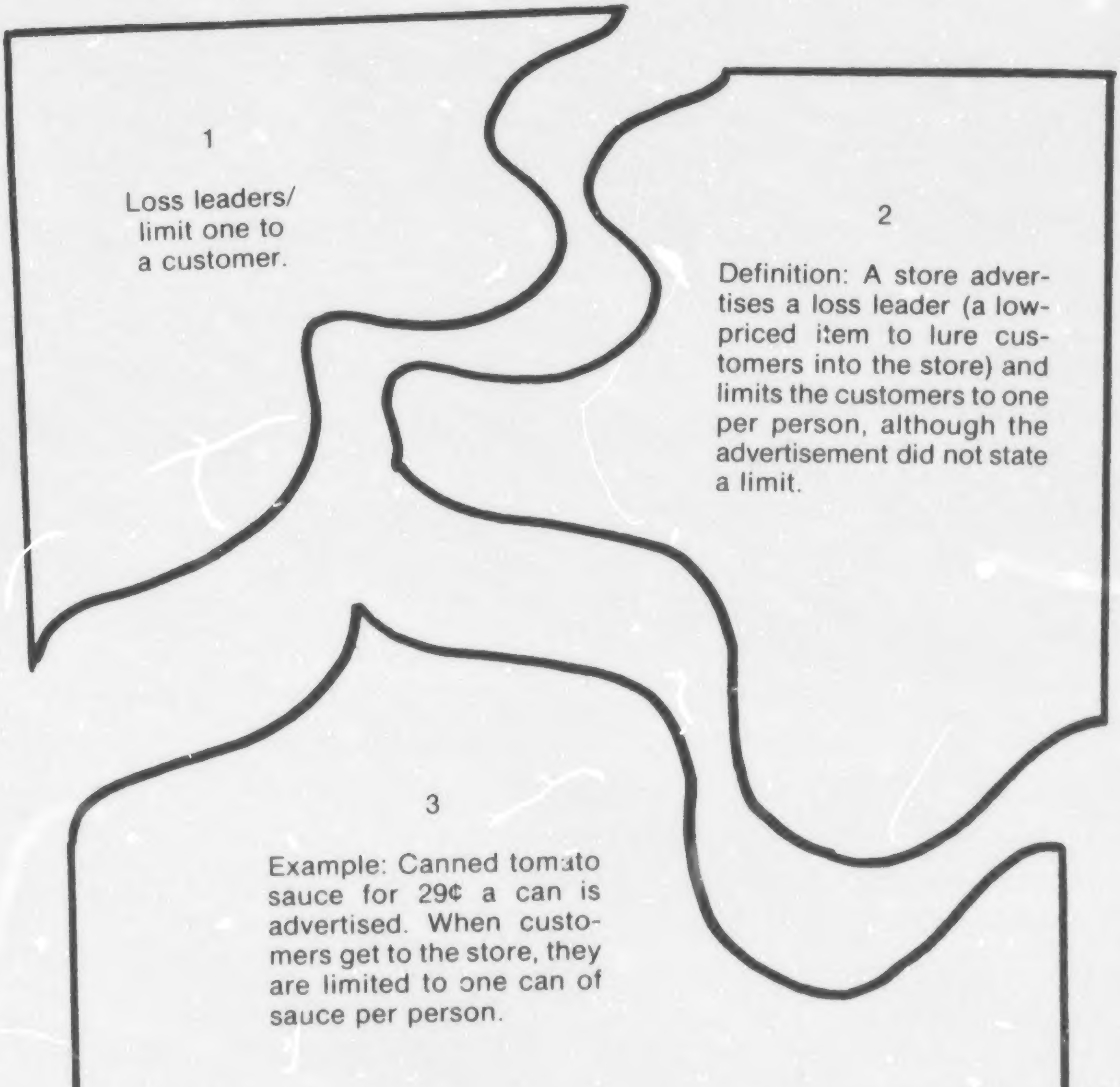
Coupons

Coupon Good for Redemption of Food Product	**Coupon** Good for Redemption of Food Product
Coupon Good for Redemption of Food Product	**Coupon** Good for Redemption of Food Product
Coupon Good for Redemption of Food Product	**Coupon** Good for Redemption of Food Product

Make enough copies so that each student will receive one.

Unfair Advertising Practices Puzzles

Make six copies of each puzzle piece on colored construction paper; or mount on tag board and color, if desired. Cut out. To make puzzles more difficult, numbers can be omitted.



1

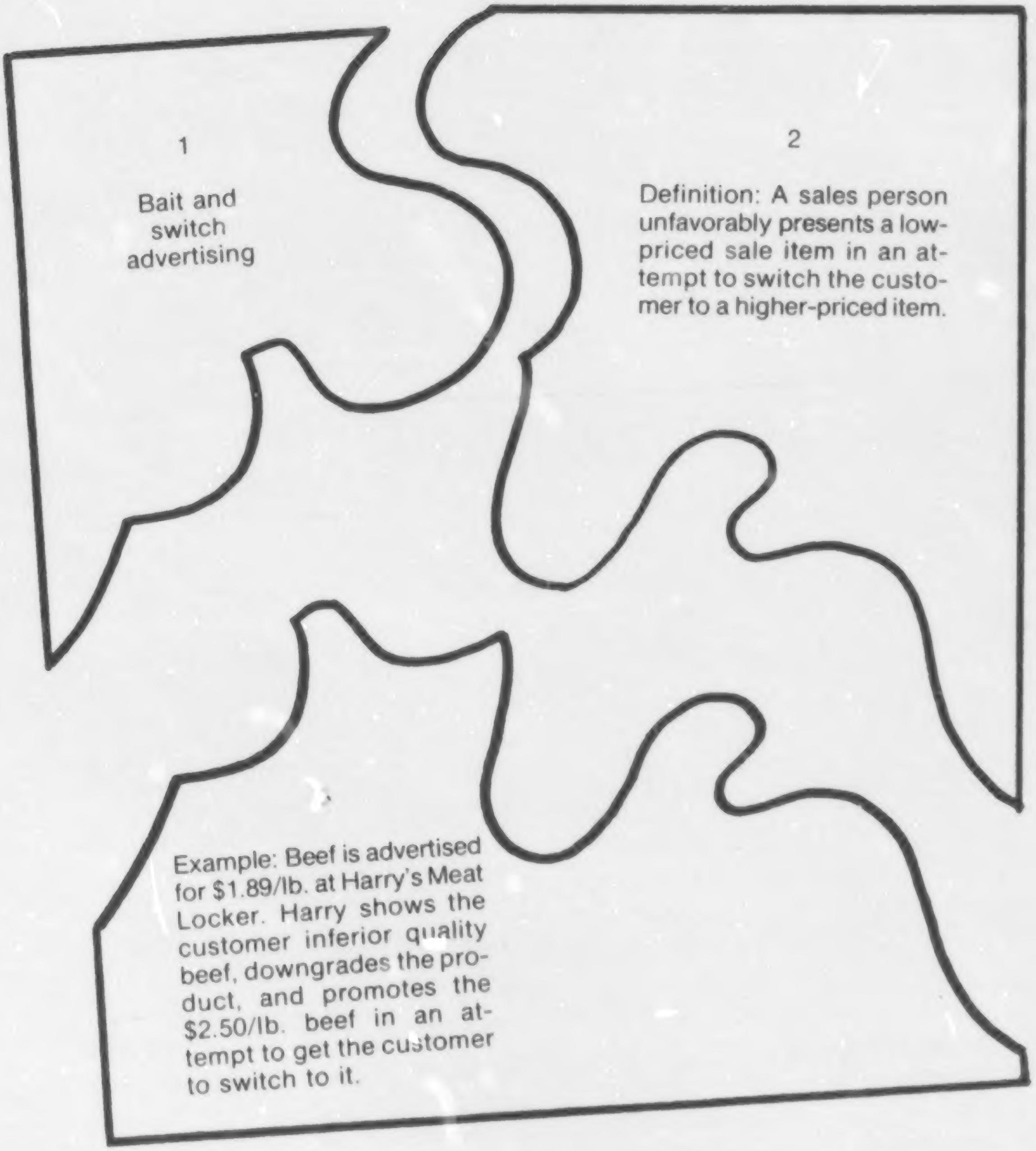
Loss leaders/
limit one to
a customer.

2

Definition: A store advertises a loss leader (a low-priced item to lure customers into the store) and limits the customers to one per person, although the advertisement did not state a limit.

3

Example: Canned tomato sauce for 29¢ a can is advertised. When customers get to the store, they are limited to one can of sauce per person.



1

Bait and
switch
advertising

2

Definition: A sales person unfavorably presents a low-priced sale item in an attempt to switch the customer to a higher-priced item.

Example: Beef is advertised for $1.89/lb. at Harry's Meat Locker. Harry shows the customer inferior quality beef, downgrades the product, and promotes the $2.50/lb. beef in an attempt to get the customer to switch to it.

1

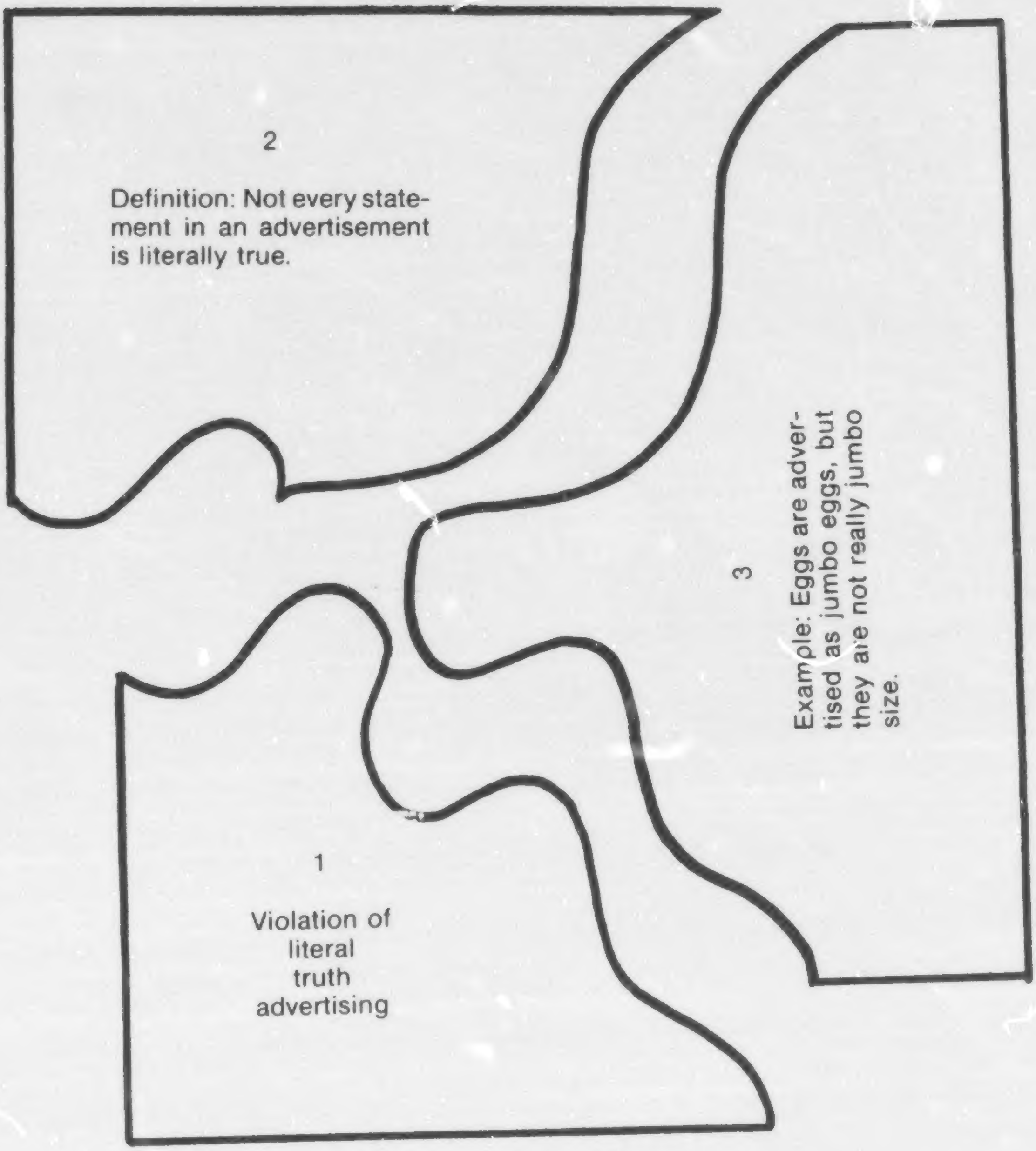
Rain check advertising

2

Definition: A store advertises an item at a low price but is sold out when the customers get there. The store gives them coupons to redeem at a later date.

3

Example: Canned olives are on sale for 39¢ a can, but the store has only two cases and runs out. You get a coupon to use later when the olives are back in stock.



2

Definition: Not every statement in an advertisement is literally true.

3

Example: Eggs are advertised as jumbo eggs, but they are not really jumbo size.

1

Violation of literal truth advertising

Unfair Advertising Practices

The following are examples of unfair advertising practices:

- Rain check

  Definition: A store advertises an item at a low price but is sold out when you get there. The store gives you a coupon to redeem at another time.

  Example: Canned olives are on sale for 39 cents a can, but the store has only two cases and runs out. You get a coupon to use later when the olives are back in stock. This practice is unfair because the quantity of olives on hand is obviously insufficient for normal demand.

- Bait and switch

  Definition: A salesperson describes a low-priced sale item unfavorably in an attempt to switch the customer to a higher-priced item.

  Example: Beef is advertised for $1.89/lb. at Harry's Meat Locker. Harry shows the customer beef that is of an inferior quality and proceeds to downgrade the $1.89 beef while he promotes the $2.50/lb. beef, trying to persuade the customer to switch to it.

- Violation of literal truth

  Definition: Literal truth advertising means that every statement in an advertisement has to be literally true. If not, then it is a violation.

  Example: Eggs are advertised as jumbo eggs, but they are not really jumbo size.

- Loss leaders/limit one per customer

  Definition: Advertising a loss leader (a low-priced item to lure the customers into the store) and limiting the customer to one per person when the advertisement did not state a limit.

  Example: Canned tomato sauce for 29 cents per can is advertised. When the customers get to the store, they can purchase only one can of the advertised sauce per person.

Ways to Prevent Becoming a Victim of Unfair Advertising Practices

1. Be informed.
2. Use common sense.
3. Be suspicious (if you seem to be getting something for nothing).
4. Deal with reputable firms.
5. Resist being pressured into making a quick decision.
6. Do not sign your name on anything until you know what you are signing.
7. Do not be afraid to say no.

Recourses Available to the Consumer

The following recourses are available to consumers who have purchased defective goods or who have received poor service:

1. Contact the manager of the store.
2. Discontinue using the product and the store until your complaint has been settled.
3. Tell your friends to do the same.
4. Write a complaint letter to the president of the company.
5. Contact a consumer protection agency such as one of the following:
   a. Local newspapers or radio and television stations that have consumer protection programs
   b. Local consumer affairs office or the California State Department of Consumer Affairs
   c. District attorney's office
   d. Attorney general's office
   e. Better Business Bureau
   f. Federal Trade Commission
   g. Small claims court
   h. A private attorney who can handle complaints outside of the small claims court

These steps can be used both to state a complaint and to express satisfaction with a product.

Role-Playing Cards

Duplicate and attach each situation to a separate index card.

Hot-Headed Harold

Directions: The student, with a disgusted expression on his face, is to stomp his feet and wave his arms wildly as he walks up to the manager. The student exclaims loudly:

"What's this world coming to? You can't even go into the corner grocery store without something going wrong. I've never seen such incompetence in my entire life! What do you have running this store, a bunch of monkeys?"

Meek, Shy, Apologizing Andy

Directions: The student is to keep his eyes on the ground and shuffle his feet; first one foot, then the other; repeating this action while talking very quietly with many pauses while he says:

"I just thought . . . you would like to know . . . uh . . . well . . . that I . . . uh . . . felt this was . . . uh . . . maybe unfair. . . . Well, just maybe . . . . But I don't really mind. . . . Well, . . . uh . . . I just didn't think, uh . . . that it was . . . well . . . right, but it's OK. . . . Uh, . . . I don't really mind keeping the . . . uh . . . product. I won't take up . . . uh . . . any more of your time. . . . Well, . . . uh . . . sorry to . . . uh . . . inconvenience you. . . . Well, bye.

Too-Busy-to-Care Karen

Directions: The student is to shrug her shoulders and wave her hands with an "I don't care" attitude while hurriedly saying:

"I know I should take the time to complain that the store is limiting me to one can of olives at the sale price although the newspaper advertisement didn't state a limit. But to tell you the truth, I really don't have the time to waste."

Businesslike Becky

Directions: The student is to look directly at the manager while she is talking. She is to talk in a calm, even voice, using sir or madam and being very polite while saying:

"Sir (Madam), I came across town to this store especially for your special on canned hams, and you are all out. I would like to know if I may have a rain check to use when more hams arrive."

Rules for Writing Consumer Complaint Letters

1. Explain the problem carefully and tactfully.
2. Include details which are necessary to identify your problem—dates, catalog numbers, styles, order numbers, and so forth.
3. Indicate the loss or inconvenience you have suffered (if any), but do not exaggerate.
4. Explain, in general, what you believe the company should do about your claim; but do not be unreasonable in your request.
5. Avoid negative accusations or threats, such as, "I demand . . ." "I must insist . . ." "You will have to . . ." "Unless you . . ." "Why can you not . . . ?"

Name ____________________

Complaint Letter

In the space below, write a complaint letter. Be sure to follow the rules for writing consumer complaint letters.

____
Your name

____
Address

____
Date

____
Company's name

____
Address

____
Salutation

____

____

____

____

____

____

____

____

____

____

____

____

____

____

____

Yours very truly,

____
Signature

Name ________________

Advertising Techniques

Unfair Advertising Practices:

Match the definition on the left with the unfair advertising practice on the right. Place the letter next to the corresponding number.

___ 1. A store advertises an item at a low price but is sold out when you get there. The store gives you a coupon to redeem at another time.

___ 2. Every statement in an advertisement has to be literally true.

___ 3. A salesperson describes a low-priced sale item unfavorably in an attempt to switch you to a higher-priced item.

___ 4. A loss leader means that a low-priced item is offered to lure customers into the store, and the customer is limited to one item per person although the advertisement did not state a limit.

a. Literal truth advertising

b. Loss leader/limited one to a customer

c. Bait and switch advertising

d. Rain check advertising

Recourses Available:

List the five basic recourses available to consumers who wish to influence food industry decisions.

Name ______________________

School Lunch—Hoorays and Helps

In the column labeled "Hoorays," write what you like about the lunch program at our school. In the column labeled "Helps," write what you would like to see improved about the lunch program at our school.

Hoorays	Helps

K-101

Name ____________________

How Does Your Nutrition Knowledge Add Up?

Complete the following steps to determine the nutrient contribution of the lunch menu in the box at the bottom of this page. More than one answer may be required; so leave enough space in the blanks.

1. Draw a ○ in the space beside the two best sources of protein on the menu.
2. Draw a □ in the space beside the best source of carbohydrate.
3. Draw a △ in the space beside one good source of vitamin A.
4. Place a ✓ in the space beside one good source of vitamin C.
5. Place an *X* in the space beside the two best sources of iron on the menu.

______ Hamburger

______ Whole grain bun

______ Tomatoes, lettuce, pickle

______ Green beans

______ Orange wedges

______ Low-fat milk

Answer Key to
"How Does Your Nutrition Knowledge Add Up?"

× ○ Hamburger
× □ Whole grain bun
△ Tomatoes, lettuce, pickle
______ Green beans
✓ Orange wedges
○ Low-fat milk

Name ____________________

The Student as a Food Service Consumer

Part I

Complete the following steps to determine the nutrient content of the lunch menu in the box at the bottom of the page:

1. Draw a ○ in the space beside the two best sources of protein on the menu.
2. Draw a □ in the space beside the two best sources of carbohydrate.
3. Draw a △ in the space beside two good sources of vitamin A.
4. Place a ✓ in the space beside one good source of vitamin C.
5. Place an *X* in the space beside the two best sources of iron on the menu.

__________ Spaghetti
__________ Tomato sauce
__________ Meat balls
__________ Whole wheat roll
__________ Lettuce wedge
__________ Fresh apricots
__________ Raisin cookies
__________ Low-fat milk

Part II

List five activities food service advisory committees can use to influence food service in their school.

1. ____
2. ____

3. ____

4. ____

5. ____

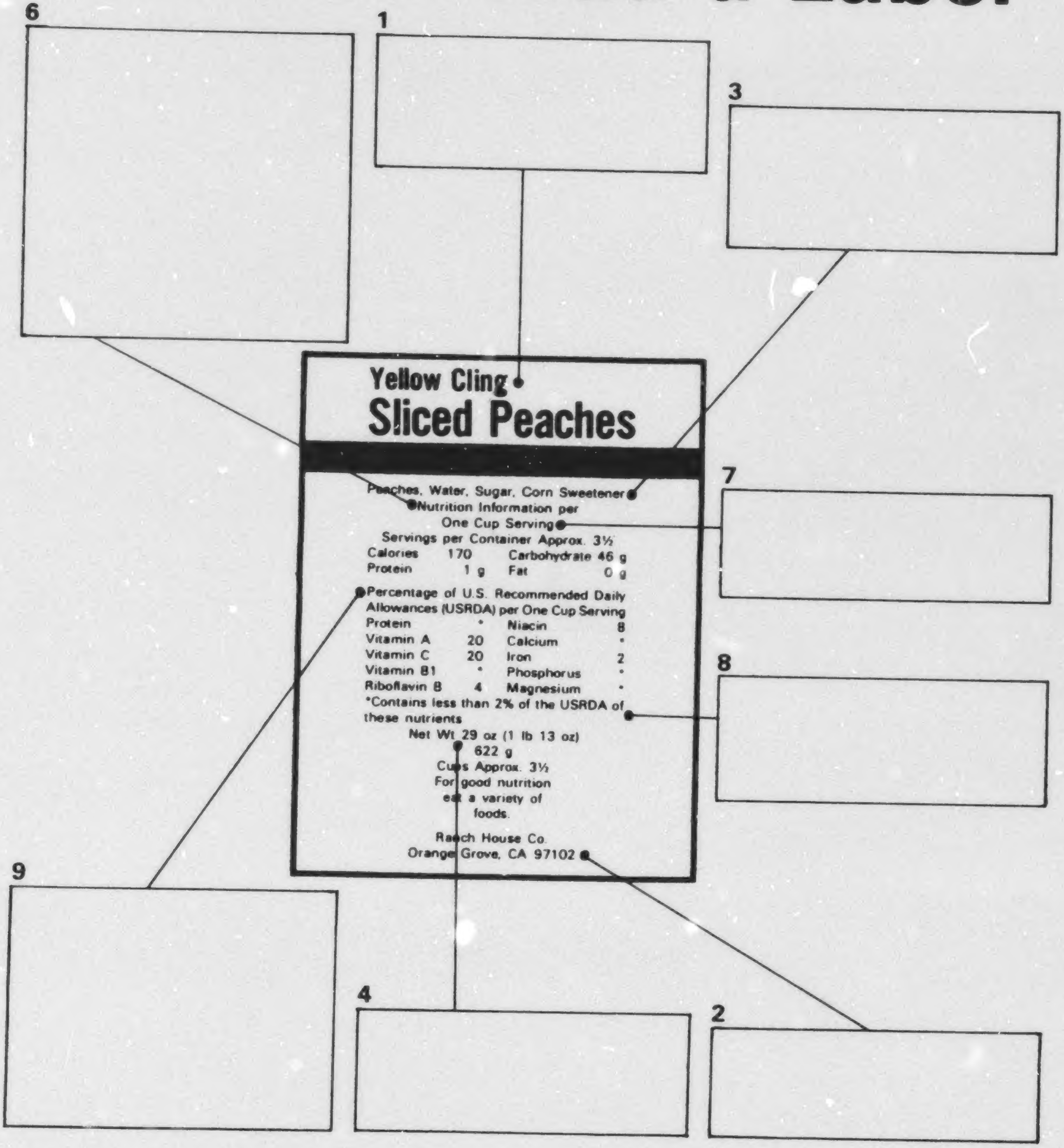
Part III

Listed below are the six steps that youth advisory groups can follow to change the school food service program. Number the steps in the order that they should be accomplished. Place the number in the blanks beside the step. Place a 1 in the blank beside the first step.

A. ___Decide whether the activities will meet the group's goals.
B. ___Get the facts.
C. ___Suggest activities to do.
D. ___Carry out the activities.
E. ___Check to see how the group is doing.
F. ___Decide what the problem is.

Name____________________

How to Read a Label



Yellow Cling
Sliced Peaches

Peaches, Water, Sugar, Corn Sweetener

Nutrition Information per
One Cup Serving
Servings per Container Approx. 3½

Calories	170	Carbohydrate	46 g
Protein	1 g	Fat	0 g

Percentage of U.S. Recommended Daily Allowances (USRDA) per One Cup Serving

Protein	*	Niacin	8
Vitamin A	20	Calcium	*
Vitamin C	20	Iron	2
Vitamin B1	*	Phosphorus	*
Riboflavin B	4	Magnesium	*

*Contains less than 2% of the USRDA of these nutrients

Net Wt 29 oz (1 lb 13 oz)
622 g
Cups Approx. 3½
For good nutrition
eat a variety of
foods.

Ranch House Co.
Orange Grove, CA 97102

5
Also required:

291

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Sliced Peaches Label

Yellow Cling

Sliced Peaches

Peaches, Water, Sugar, Corn Sweetener
Nutrition Information per
One Cup Serving
Servings per Container Approx. 3½

Calories	170	Carbohydrate	46 g
Protein	1g	Fat	0 g

Percentage of U.S. Recommended Daily
Allowances (USRDA) per One Cup
Serving

Protein	*	Niacin	8
Vitamin A	20	Calcium	*
Vitamin C	20	Iron	2
Vitamin B1	*	Phosphorus	*
Riboflavin B	4	Magnesium	*

*Contains less than 1% of the USRDA of these nutrients

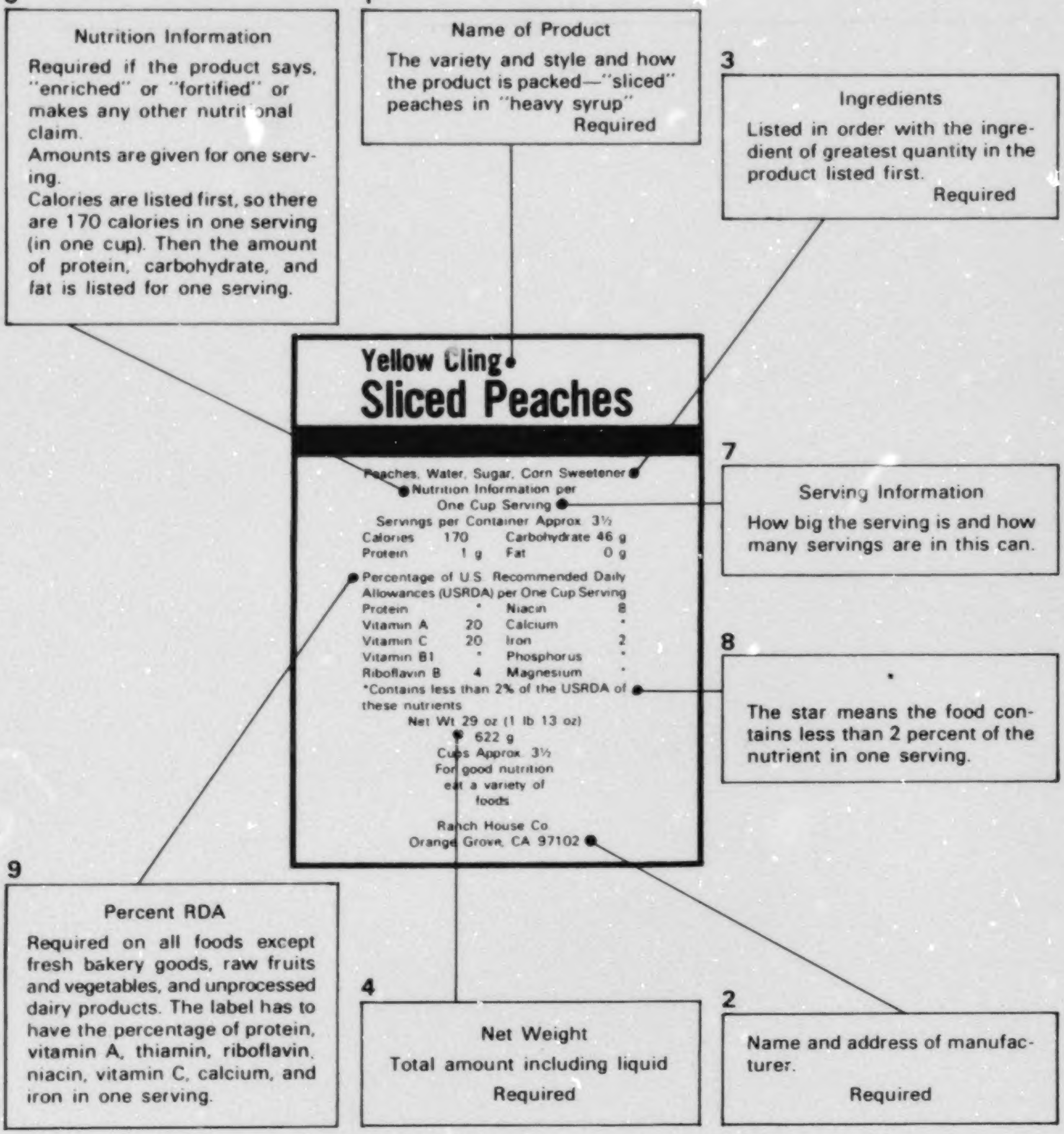
Net Wt 29 oz (1 lb 13 oz)
622 g
Cups Approx. 3½
For good nutrition
eat a variety of
foods.

Ranch House Co.
Orange Grove, CA 97102

BEST COPY AVAILABLE

How to Read a Label

(Completed)



6

Nutrition Information

Required if the product says, "enriched" or "fortified" or makes any other nutritional claim.
Amounts are given for one serving.
Calories are listed first, so there are 170 calories in one serving (in one cup). Then the amount of protein, carbohydrate, and fat is listed for one serving.

1

Name of Product

The variety and style and how the product is packed—"sliced" peaches in "heavy syrup"
Required

3

Ingredients

Listed in order with the ingredient of greatest quantity in the product listed first.
Required

Yellow Cling
Sliced Peaches

Peaches, Water, Sugar, Corn Sweetener
Nutrition Information per
One Cup Serving
Servings per Container Approx 3½

Calories	170	Carbohydrate	46 g
Protein	1 g	Fat	0 g

Percentage of U.S. Recommended Daily Allowances (USRDA) per One Cup Serving

Protein	*	Niacin	8
Vitamin A	20	Calcium	*
Vitamin C	20	Iron	2
Vitamin B1	*	Phosphorus	*
Riboflavin B	4	Magnesium	*

*Contains less than 2% of the USRDA of these nutrients

Net Wt 29 oz (1 lb 13 oz)
622 g
Cups Approx 3½
For good nutrition
eat a variety of
foods

Ranch House Co
Orange Grove, CA 97102

7

Serving Information

How big the serving is and how many servings are in this can.

8

*

The star means the food contains less than 2 percent of the nutrient in one serving.

9

Percent RDA

Required on all foods except fresh bakery goods, raw fruits and vegetables, and unprocessed dairy products. The label has to have the percentage of protein, vitamin A, thiamin, riboflavin, niacin, vitamin C, calcium, and iron in one serving.

4

Net Weight

Total amount including liquid
Required

2

Name and address of manufacturer.
Required

5
Also required:
If product is below government standards, it must say "imitation."
If any artificial flavor, color, or preservative is used, it must say so on the label.

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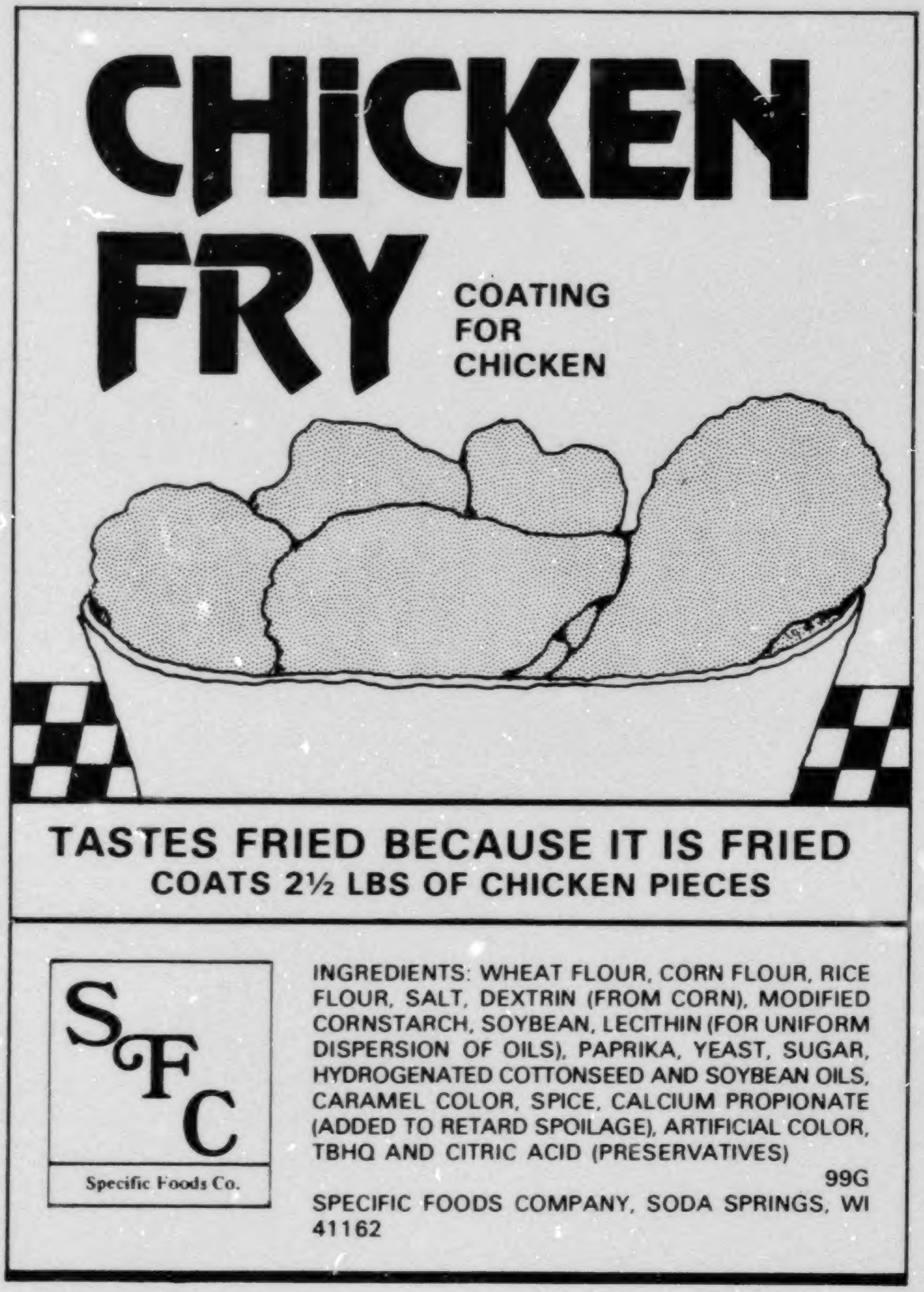
Chicken Fry Label



CHICKEN FRY

COATING
FOR
CHICKEN

TASTES FRIED BECAUSE IT IS FRIED
COATS 2½ LBS OF CHICKEN PIECES

SFC
Specific Foods Co.

INGREDIENTS: WHEAT FLOUR, CORN FLOUR, RICE FLOUR, SALT, DEXTRIN (FROM CORN), MODIFIED CORNSTARCH, SOYBEAN, LECITHIN (FOR UNIFORM DISPERSION OF OILS), PAPRIKA, YEAST, SUGAR, HYDROGENATED COTTONSEED AND SOYBEAN OILS, CARAMEL COLOR, SPICE, CALCIUM PROPIONATE (ADDED TO RETARD SPOILAGE), ARTIFICIAL COLOR, TBHQ AND CITRIC ACID (PRESERVATIVES)

99G

SPECIFIC FOODS COMPANY, SODA SPRINGS, WI
41162

Mayonnaise and Salad Dressing Labels

K-110

Mellinger's

Real

Mayonnaise

8 Fl oz

Nutrition Information Per Serving

Serving size	1 tbsp. (14 g)
Servings per container	64
Calories	100
Protein	0 g
Carbohydrate	0 g
Fat	11 g
Percent of calories from fat	99%
Polyunsaturated	5 g
Saturated	2 g
Cholesterol	(50 mg/100 g) 10 mg
Sodium	(565 mg/100 g) 80 mg

Percentage of U.S. Recommended Daily Allowances (U.S. RDA)

Contains less than 2 percent of the U.S. RDA of protein, vitamin A, vitamin C, thiamin, riboflavin, niacin, calcium, iron.

†Information on fat and cholesterol content is provided for individuals who, on the advice of a physician, are modifying their total dietary intake of fat and/or cholesterol.

Ingredients: Soybean Oil, Partially Hydrogenated Soybean Oil, Whole Eggs, Vinegar, Water, Egg Yolks, Salt, Sugar, Lemon Juice, and Natural Flavors, Calcium Disodium EDTA added to protect flavor.

MOTHER'S MIRACLE

SALAD ★ DRESSING ★

16 Fl oz (1 Pt)

Nutrition Information Per Serving

Serving size	1 tbsp. (14 g)
Servings per pkg	16
Calories	70
Protein	0
Carbohydrate	2 g
Fat (provides 90% of calories)	7 g
Polyunsaturates	4 g*
Saturates	1 g*
Cholesterol (45 mg/100 g)	5 mg*

Ingredients: Soybean Oil, Water, Vinegar, Sugar, Egg Yolk, Starch, Food Starch-Modified, Salt, Mustard Flour, Spice, Paprika, Natural Flavor.

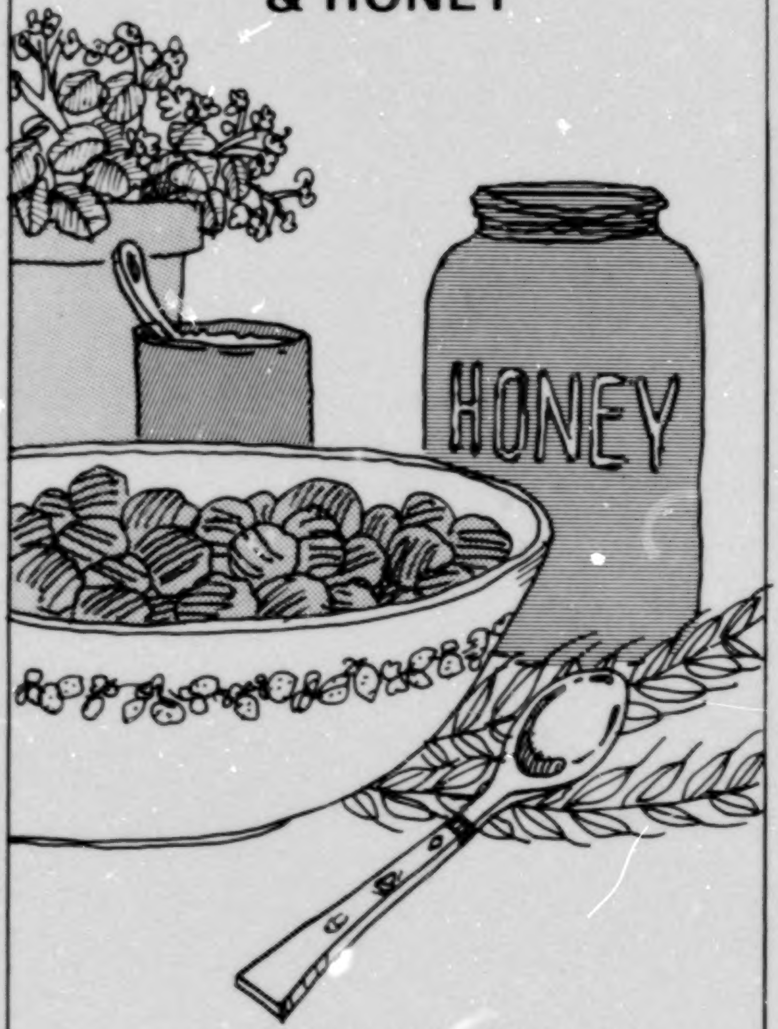
Contains less than 2% of the U.S. Recommended Daily Allowances (U.S. RDA) of protein, vitamin A, vitamin C, thiamine, riboflavin, niacin, calcium and iron.

*This information on fat and cholesterol content is provided for individuals who, on the advice of a physician, are modifying their total dietary intake of fat and cholesterol.

Smith's 100% Natural Cereal Label

SMITH'S
100% Natural Cereal

NATURALLY SWEETENED WITH BROWN SUGAR & HONEY



Ready to eat blend of rolled oats, brown sugar, whole wheat, coconut, almonds, honey

NET WT 16 OZ (1 POUND) 448 g

Smith's Natural Cereal is a natural, not organic, food product made from conventionally grown food stuffs to which no artificial additives or preservatives have been added.

Ingredients: Rolled Oats, Brown Sugar, Rolled Whole Wheat, Coconut Oil, Dried Unsweetened Coconut, Nonfat Dry Milk, Almonds, Honey.

Nutrition Information Per Serving

Serving Size ¼ Cup, 1 Oz (28 g)

Servings Per Container 16

	Per 1 Oz Cereal	With ½ Cup Vitamin D Fortified Whole Milk
Calories	140	220
Protein	4	8 g
Carbohydrate	17 g	23 g
Fat	6 g	10 g
Percentage of U.S. Recommended Daily Allowances (U.S. RDA)		
Protein	4	15
Vitamin A	*	2
Vitamin C	*	*
Thiamin	4	6
Riboflavin	4	15
Niacin	2	2
Calcium	4	15
Iron	4	4
Vitamin D	*	10

*Contains less than 2% the U.S. RDA for this nutrient.

Carbohydrate Information

	Per 1 Oz Cereal	With ½ Cup Vitamin D Fortified Whole Milk
Starch and Related Carbohydrates	11 g	11 g
Sucrose and Other Sugars	6 g	12 g
Total	17 g	23 g

Manufactured by
The Smith Company
Los Angeles, CA 90001

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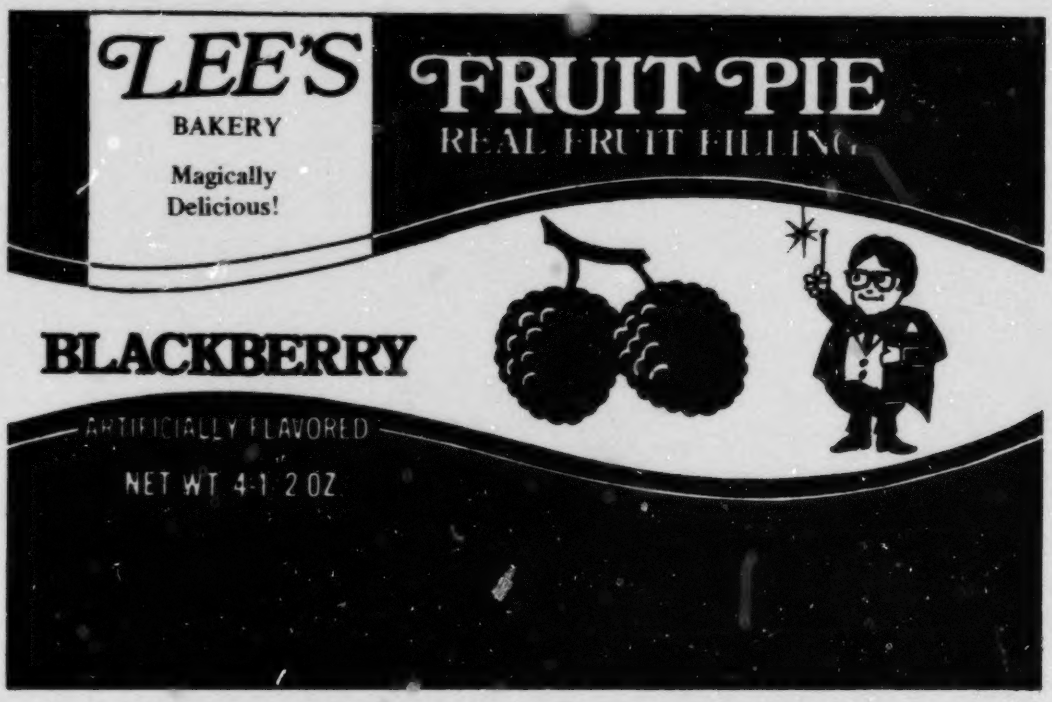
Lee's Fruit Pie Label


LEE'S
BAKERY
Magically
Delicious!

FRUIT PIE
REAL FRUIT FILLING

BLACKBERRY

ARTIFICIALLY FLAVORED

NET WT 4-1/2 OZ

Made with blackberries, enriched flour (niacin [a "B" vitamin], reduced iron, thiamine mononitrate [B_1], riboflavin [B_2]), water, partially hydrogenated vegetable and/or animal shortening (may contain soybean oil, cottonseed oil, palm oil, beef fat or lard), sugar, corn syrup, skim milk, modified food starch, apples, salt, dextrose, corn flour, calcium carbonate and sulfate, agar, mono- and diglycerides, tapioca starch, artificial color and flavor; sodium benzoate and propionate (to retard spoilage).

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Jell-Quick Label

Jell-Quick

INSTANT PUDDING & PIE FILLING

NET WT. 5 5/8 OZ.

SIX 1/2-CUP SERVINGS

NUTRITION INFORMATION

SERVING SIZE 1/2 CUP
SERVINGS PER PACKAGE 6

	MIX TO MAKE 1 SERVING	1 SERVING PREPARED AS PUDDING
CALORIES	100	180
PROTEIN	0	4 G.
CARBOHYDRATE	25 G	31 G.
FAT	0	4 G
PERCENTAGES OF U.S. RECOMMENDED DAILY ALLOWANCES (U.S. RDA)		
PROTEIN	*	8%
VITAMIN A	*	2%
VITAMIN C	*	*
THIAMINE	*	2%
RIBOFLAVIN	*	10%
NIACIN	*	*
CALCIUM	*	15%
IRON	*	*
PHOSPHORUS	20%	30%

*CONTAINS LESS THAN 2% OF THE U.S. RDA OF THESE NUTRIENTS.

Ingredients: Sugar, Modified Tapioca Starch, Sodium Phosphates (for proper set), Salt, Hydrogenated Soybean Oil, Di- and Monoglycerides (Emulsifier—for uniform dispersion of oil), Nonfat Milk, Artificial Flavor, Artificial Color including FD&C Yellow No. 5, Natural Flavor, BHA (a preservative). 159G.

BEST COPY AVAILABLE

Pure Grain Elbow Macaroni Label

PURE GRAIN

Finest Quality
High protein 100% semolina

Enriched
Elbow
Macaroni Product

Nutrition Information Per Serving

Weight of serving 1½ oz. (dry)		Protein	5 grams
Servings per package	10.6	Carbohydrates	31 grams
Calories	150	Fat	1 gram

Percentage of U.S. Recommended Daily Allowances (U.S. RDA)

Protein	8%	Riboflavin	8%
Vitamin A	*	Niacin	10%
Vitamin C	*	Calcium	*
Thiamine	25%	Iron	8%

*Contains less than 2% of the U.S. RDA of these nutrients

Ingredients: Semolina Enriched with Niacin, Iron (Ferrous Sulphate). Thiamine Mononitrate (vitamin B-1), Riboflavin (vitamin B-2).

©Pure Grain Macaroni Co., Fresno, CA 94525

Net. Wt. 32 oz. (2 lb.)
907 Grams

BEST COPY AVAILABLE

K-114

Name ____________________

Name That Product

Circle one item.

1. Beef, water, vitamins, and minerals (tricalcium phosphate, potassium, chloride, choline chloride, vitamin E supplement, magnesium oxide, iron oxide, thiamin, vitamin A supplement, manganese, sulfate, copper oxide, cobalt carbonate, vitamin D_3 supplement, potassium, iodide, folic acid, and pyridoxine hydrochloride), seasoning (salt and onion powder), guar gum and sodium nitrite (to promote color retention)

   A. Beef hot dogs

   B. Natural smoked beef jerky

   C. Canned dog food, beef flavor

---

2. Sugar, dextrin (from corn), modified corn starch, partially hydrogenated soybean, cottonseed and palm oils, salt, corn syrup solids, onion powder, hydrolized vegetable protein (for flavor), natural flavor, monosodium glutamate (flavor enhancer), citric acid (for flavor), modified wheat starch, chicken fat, caramel color, paprika, spice, artificial flavor, turmeric, BHA (preservative)

   A. Frozen toaster waffles

   B. Dried soup mix

   C. Chicken coating mix

---

3. Water, sugar syrup, citric acid, sodium citrate, vegetable gum, natural flavors, potassium sorbate, sodium benzoate, vitamin C, glyceryl abietate, artificial color, BHA

   A. Lemonade drink

   B. Thirst-quenching drink

   C. Lemon fresh hair conditioner

---

4. Sugar, gelatin, adipic acid (for tartness), disodium phosphate (controls acidity), fumaric acid (for tartness), artificial coloring, artificial flavoring

   A. Cocoa mix

   B. Blackberry jello

   C. Lemon flavor frosting mix

5. Corn syrup solids, partially hydrogenated vegetable oil, sodium caseinate, monoglycerides and diglycerides, dipotassium phosphate, artificial flavoring and colors

A. Nondairy creamer

B. Imitation whipped topping

C. Toothpaste

6. Hydrolyzed vegetable protein, salt, sugar, onion, autolyzed yeast, beef fat, maltodextrin, celery, caramel, beef extract, disodium inosinate, disodium guanylate

A. Beef flavor cat food

B. Beef bouillon cubes

C. Hamster and gerbil food

7. Sugar, enriched wheat flour (contains niacin), reduced iron, thiamin mononitrate (vitamin B), riboflavin (vitamin B_2), vegetable and/or animal shortening (lard and/or partially hydrogenated soybean oil and/or palm oil), cocoa, whey, corn starch, chocolate, sodium bicarbonate, salt, artificial flavoring, and lecithin

A. Chocolate syrup

B. Chocolate flavor instant breakfast

C. Chocolate cookies with vanilla creme filling

Name ____________________

What's on Your Label?

Paste your label here.

1. Does this label have all the information it is supposed to have according to labeling regulations? Check for the following:

   Name of the product ____________________

   Variety, style, or pack ____________________

   Net weight ____________________

   Name and address of the manufacturer, packer, or distributor __________

   ____

   List of ingredients __________ Listed __________ Not listed

   What ingredient is in the greatest amount? ____________________

   What ingredient is in the smallest amount? ____________________

2. Is there nutritional information on this label? _____Yes ____No

   If yes, why is the nutrition label there?

   _____A nutritional claim is made.

   _____The product is enriched or fortified.

   _____The manufacturer has voluntarily placed this information on the label.

3. If your doctor told you not to eat foods with added salt, could you eat this product? ____Yes ____No

4. What other information do you think should be on this label? __________

   ____

Label for the Crossword Puzzle

A label on a half gallon (1.89 litres) of low-fat milk contains the following information:

Nutritional Information per Serving

Serving size	1 cup
Servings per container	8
Calories	140 grams
Protein	10 grams
Carbohydrate	13 grams
Fat	5 grams

Percentage of U.S. Recommended Daily Allowances (U.S. RDA)

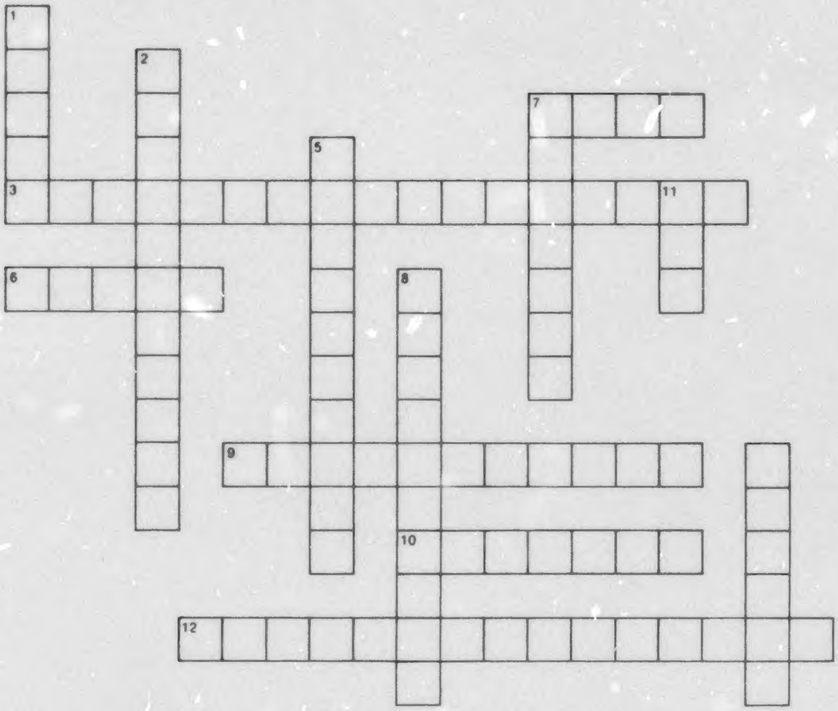
Protein	25
Vitamin A	10
Vitamin C	6
Thiamin	30
Riboflavin	30
Niacin	*
Calcium	35
Iron	*
Vitamin D	25
Vitamin B	6
Vitamin B_{12}	15
Phosphorus	25
Magnesium	10
Zinc	6
Pantothenic Acid	6

*Contains less than 2 percent of the U.S. RDA of these nutrients.

Using the above label, answer the questions on the following page to complete the crossword puzzle.

Name ____________________

Label Crossword Puzzle



Down

1. How many cups are in this container?
2. Brian consumed three cups (711 mL) of milk. What percent of the U.S. RDA did he consume of vitamin D?
5. Dave consumed four cups (948 mL) of milk on Monday. What percent of the U.S. RDA of protein did he consume?
7. How many grams of fat are found in three cups of milk?
8. How much of the U.S. RDA of vitamin A is found in one serving?
11. How many times more protein than fat is found in 4½ cups (1066 mL) of milk?
13. How many grams of protein are contained in three servings of this milk?

Across

3. Julie consumed 2½ cups (592 mL) of milk. How many calories are in 2½ cups?
6. How many grams of protein are in four cups of milk?
7. Juan drank enough milk to get 560 calories. How many cups did he drink?
9. The U.S. RDA of the nutrients are listed in ____________________.
10. Which nutrient is supplied more than any other nutrient?
12. How many calories are in one serving of the milk?

Name ______________________

What's on the Label?

DIRECTIONS: Stir soup in pan. Gradually stir 1 can of water into soup. Heat to boiling, stirring occasionally. For extra richness, prepare as above using ½ milk and ½ water. Makes about 2½ cups.

Satisfaction guaranteed or money back. Store at room temperature. Recommended use, by month and year, on top line of can end.

INGREDIENTS: Water, Mushrooms, Wheat Flour, Partially Hydrogenated Vegetable Oil (Soybean Oil, Palm or Cottonseed Oil), Cream, Salt, Dried Dairy Blend (Whey, Calcium Caseinate), Modified Food Starch, Margarine (Partially Hydrogenated Soybean Oil, Non-fat Milk, Water, Natural Flavoring, Vitamin A Palmitate), Monosodium Glutamate, Natural Flavoring, Yeast Extract and Dehydrated Garlic.

MOM'S

SOUP

Cream of

Mushroom

condensed

NET WT. 10¾ OZ.
(305 GRAMS)

1. Is there any information on this label that is optional? ______________

   If yes, list the optional information. ______________________________

   ____

   ____

2. Is there nutritional information on this product? ______________

   If yes, why? ______________________________________

   ____

   If no, why not? ____________________________________

   ____

3. What is the net weight of this product? ______________________
4. Is this product enriched or fortified? ________________________
5. If you could not have any salt in your diet, could you eat this product? ____

   If yes, how do you know that there is not any salt in this product? ______

   ____

   ____

If no, how do you know that there is salt in this product? ____________________

____

____

6. List the information on this label that has to be there (required): ____________

____

____

____

____

7. What other information would be helpful to know about this product (that is not already listed on the label)?

____

____

____

____

307

Name ______________________

In What Ways Is Food Affected on the Long Road from Farm to Market?

Complete the outline below while you listen to the story, "The Long Road from Farm to Market."

I. Growing conditions that affect plant food production:
   A.
   B.
   C.
   D.
   E.

II. Conditions of harvest and transportation methods that affect the quality of plant foods:
   A.
   B.
   C.

III. Methods of handling food during processing that can affect its quality:
   A.
   B.
   C.
   D.
   E.

Extra Credit:

Write a paragraph about what effect the conditions listed in this outline have on food prices.

The Long Road from Farm to Market

From the planting of seeds until the crops are harvested, sent to market, and consumed, there are many ways that the quality, cost, variety, and availability of food are affected.

The farmer is concerned about growing conditions because they determine whether a bumper crop will be produced and whether the crop will be of top quality. One of the conditions for growth a farmer is concerned about is the weather. When the temperature is too cold or too hot, crops do not produce abundant or high-quality food. What happens when there is too much rain? What happens when there is too little rain and no equipment or water for irrigation? What happens to the quality of lettuce when it rains during harvest? (*Answers:* rusting and quicker deterioration occur, and excess mud and dirt appear.)

Using pesticides in food production has been an area of controversy. What do pesticides do? (Kill pests.) Using pesticides can increase the quantity and quality of crops. Pesticides may kill helpful as well as harmful insects and leave residues on food that are harmful to humans. Pollution of air and water can result from using pesticides.

Farmers have used commercial fertilizers to increase the quantity and quality of crops. Because many fertilizers are manufactured from petroleum products that are in short supply and can pollute the air and water, there is controversy over the use of such fertilizers. Without the addition of fertilizers in large-scale operations, food supplies would be decreased.

The condition of the soil also affects the quantity of crops that are produced. Soil that is compacted and that lacks loam (the rich top soil) and humus (decaying organic material) does not produce high-quality foods.

Air pollution is of growing concern to farmers because it interferes with photosynthesis, the making of food by green plants. Sunlight is one requirement for photosynthesis to take place.

Conditions of harvest and transportation methods can affect the quality and availability of plant foods. Many foods are harvested before they are ripe and are

LEE'S MARKET
carrots
Farm Fresh

ripened in transit or in storage before they are consumed. Fruits such as bananas, pears, peaches, and tomatoes are common examples. Foods that ripen in a natural state on the tree, bush, or vine usually have a better flavor than those ripened after the harvest.

Foods need to be stored at the proper temperature to preserve their nutrient content and fresh quality. Most foods require cool, dry conditions.

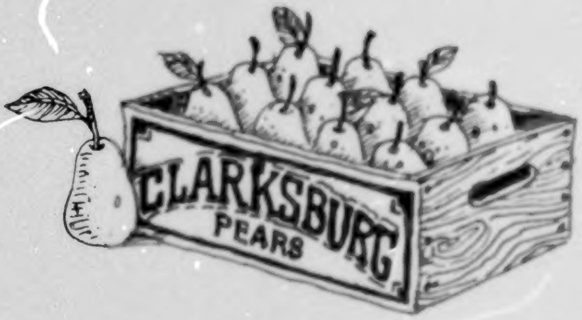
If foods are not protected from bruising and crushing during harvest and transit, they will deteriorate in eating quality more quickly than those that are properly protected.

The methods used to handle food during processing can affect its quality. After being shipped from the farm, most food products are processed or prepared in some way for sale. Processing may mean just washing, as in the case of apples, or it may mean changing the nutritional value and physical appearance, as in the refining of wheat into white flour.

Chemicals that help preserve foods are often added during processing. Other chemicals are added to foods to change the taste and appearance of foods. These chemicals are called food additives when they are used in this way.

One purpose of the packaging materials used for processed foods is to keep the food fresh and attractive. Keeping air away from foods helps them stay fresher.

Some foods are perishable and cannot be stored for any length of time. Examples of these foods are milk, lettuce, bean sprouts, and fresh ground beef. The method and length of time for food storage affect its quality.



Name ____________________

Polar Forces

Polar means *opposite.* When a controversial idea is discussed, writing down the pros and cons of the issue can help us decide how we feel about it.

Arguments for (Pro)	Arguments against (Con)

K-125

Name ____________________

From Farm to Market

Fill in the blanks in each sentence to make it a true statement. Use the words in the word box. Each word will be used only once. Not all words will be used.

Word Box

Preservatives
Bruised
Weather
Conditions
Pollution
Temperature
Fertilizer
Chemicals
Variety

Additives
Storage
Packaging
Air
Soil
Quantity
Pesticides
Handling
Methods

1. Bumper crop describes producing food in a large ____________________
2. The proper ____________________ during transit of food will keep it from getting too dry.
3. Farmers are concerned about ____________________ pollution because it interferes with photosynthesis.
4. Using commercial ____________________ to increase the size of cauliflower can cause air and water pollution.
5. Humus and loam, when present in the ____________________ while it is being cultivated, help produce bumper crops.
6. The use of ____________________ in processed foods to increase the keeping quality causes some consumers to be concerned.
7. When temperatures fall below freezing while fruit trees are in bloom, the ____________________ of fruits available for eating will be decreased.
8. One job of ____________________ is to keep air away from food.
9. During long-term ____________________ of foods, the nutritional value can be decreased.
10. Spraying ____________________ on foods can kill both helpful and harmful pests.
11. When ____________________ are put in foods during processing, the nutritional content of the foods is sometimes improved.

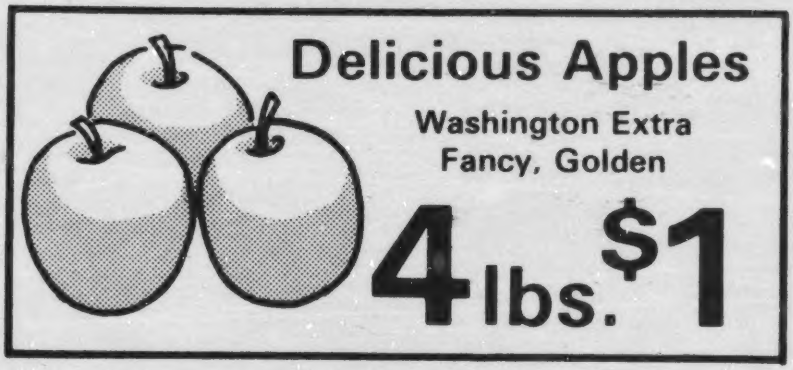
12. The addition of harmful substances added to the water and air is called ______________________.

13. Weather, soil, air, pesticides, and fertilizers are all ______________________ that affect the quality and quantity of crops a farmer can produce.

14. When foods are ______________________ during handling, they decay more quickly than if the skin remains in good condition.

15. Food handling ______________________ include processing, addition of preservatives, use of additives, packaging materials, and storage conditions.

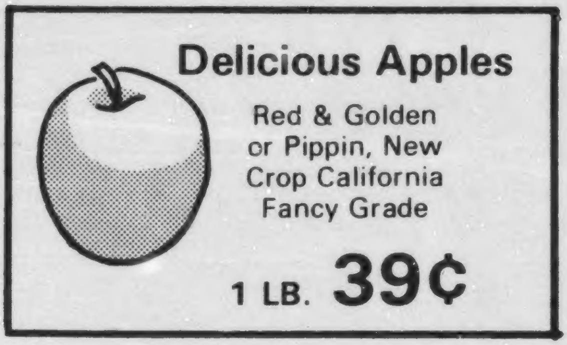
Food Advertisements



Delicious Apples

Washington Extra
Fancy, Golden

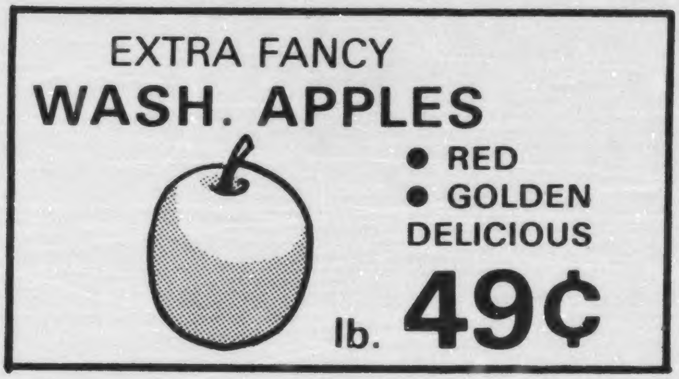
4 lbs. $1



Delicious Apples

Red & Golden
or Pippin, New
Crop California
Fancy Grade

1 LB. 39¢



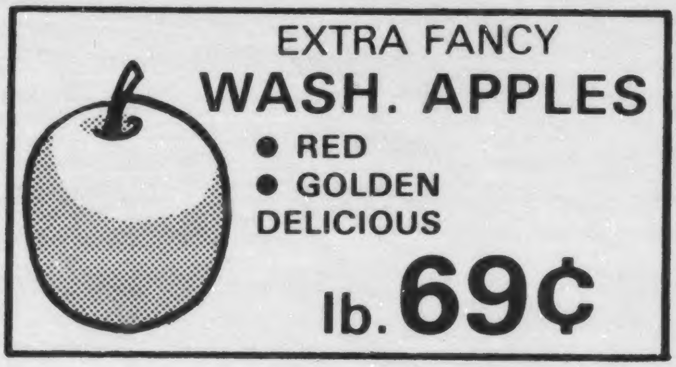
EXTRA FANCY

WASH. APPLES

- RED
- GOLDEN

DELICIOUS

lb. 49¢



EXTRA FANCY

WASH. APPLES

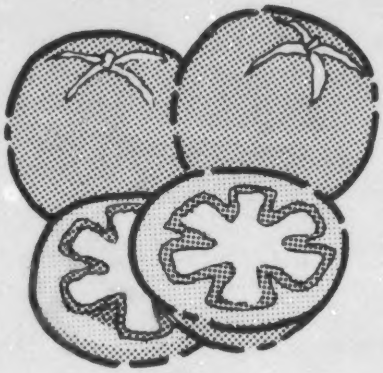
- RED
- GOLDEN

DELICIOUS

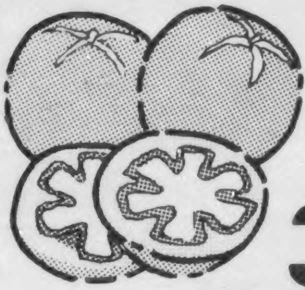
lb. 69¢

Food Advertisements

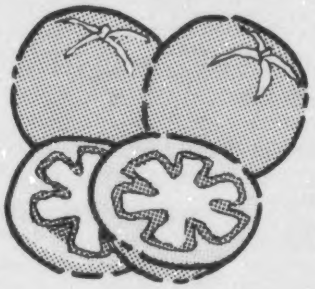
Tomatoes
Medium
Large Size,
Vine Ripe
lb. **18¢**



Tomatoes
Medium
Large Size,
Vine Ripe
lb. **29¢**



Tomatoes
Perfect Slicers,
Vine Ripe
3 lbs. **$1**



Tomatoes
Large, Vine Ripe
lb. **49¢**

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Food Advertisements

Zucchini Squash

Good So
Many Ways!

lb. **29¢**

Zucchini

Squash, Good
So Many Ways

3 lbs. $1

Zucchini Squash

Good So
Many Ways

lb. **49¢**

Zucchini Squash

Good So
Many Ways!

lb. **88¢**

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Group number ________

Group Prediction Sheet

		⬆ Predictions	⬇
Situation number	Reason for prediction	Price goes up	Price goes down
One			
Two			
Three			
Four			
Five			
Six			
Seven			

Check one for each situation.

Situation Cards

Situation Number One

Only whole grain bread products are baked at the Good Earth Bread Company. A team of research scientists discovers that eating whole grains is the secret to a long, healthful life. The management of the Good Earth Bread Company begins to spend a great deal of money to advertise these new findings, because it feels that more advertising will increase the sales of the bread products. The strategy works, and more people begin to buy Good Earth bread.

Predict whether the price of Good Earth bread will go up or down.

____

____

Situation Number Two

The United States government signs a trade agreement with the Soviet Union that one-fourth of all the wheat grown in the United States next year will be sold to Russia. This arrangement creates a wheat shortage in the United States.

Predict whether the price of wheat will go up or go down.

____

____

Situation Number Three

The University of California at Davis announces the discovery of a method for growing wheat that will produce more wheat per acre. Since more wheat will be grown, there will be a larger supply available to manufacturers of wheat products.

Predict whether the price of wheat will go up or go down.

____

____

Situation Number Four

The Good Earth Bread Company begins a big advertising campaign on television, radio, and in magazines, claiming that its whole grain breads are "indescribably delicious, loaded with fiber, and 100 percent natural." Sales rise. The management decides to increase its advertising efforts even more because the first advertising campaign was so successful.

Predict whether the price of Good Earth bread will go up or go down.

____

____

Situation Number Five

Because of increased petroleum prices, the cost of fertilizer made from petroleum has nearly tripled in the last three years. The fertilizer is widely used in the growing of wheat, and wheat growers have to pay higher prices for this fertilizer.

Predict whether the price of wheat will go up or go down.

____

____

Situation Number Six

The Good Earth Bread Company owns thousands of acres of wheat fields in Kansas. Recent floods have damaged this year's *entire* crop. None of the wheat was able to be saved. The company had to rely on the leftover wheat from last year's crop, which was not enough to make the amount of bread usually sold. The company produced less bread because of the wheat shortage.

Predict whether the price of the Good Earth bread will go up or go down.

____

____

Situation Number Seven

A large boatload of Granny Smith's apples is on its way to the San Francisco harbor from New Zealand. This shipment contains the total supply of apples for the United States for the month of November, which is apple season in New Zealand but not in any part of the United States. The boat is hijacked, and none of the apples ever arrives in the United States. No other shiploads of apples were sent. The only apples available in the markets were those left from the October shipment, and these were not enough to meet the demand of the consumers.

Predict whether the price of apples in November will go up or go down.

____

____

Situation Cards—Teacher's Key

Situation Number One

The price of the Good Earth bread, all other conditions being equal, *will go up* because of the increase in consumer demand. The more a product is in demand, the more the company produces; and this increased production causes an increase in prices to cover these expenses. Advertising the new health claim on the part of the company causes increased sales, but the consumer will pay for the cost of the advertising campaign.

Situation Number Two

The price of wheat *will go up* because of a decline in in the amount of wheat available to the United States' food manufacturers. Consumers will pay a higher price for all wheat products.

Situation Number Three

The price of wheat *will go down* because of the breakthrough in scientific research, which enables a larger supply to reach the bread manufacturers.

Situation Number Four

The price of bread *will go up* to compensate the company for the increased advertising costs.

Situation Number Five

The price of wheat *will go up* because of the increased cost of the petroleum and, in turn, the fertilizer. The price is affected by rising costs of materials used in the growing of wheat.

Situation Number Six

The price of bread *will go up* because of the damage caused by extreme weather conditions. Less available wheat causes a higher price for the product in the marketplace. Consumer demand is high, and less of the product is available to those consumers.

Situation Number Seven

The price of apples per pound *will go up* because they are not in season in November in most areas of the United States. The expected supply from New Zealand is cut, and only a small supply of apples is available until the next shipload comes in December.

Name ____________________

Factors That Affect Food Availability

I. Put a check in the blank space beside all of the conditions listed below that *will not* affect the price of food going up or going down.

_____1. Bumper orange crop
_____2. Higher gas prices
_____3. Labor dispute
_____4. Drought
_____5. Surplus of leather products
_____6. Season
_____7. Disease wiping out the wheat crop
_____8. Bumper cotton crop
_____9. Increased advertising by the large food companies

II. Put a check in the blank space beside all of the conditions listed below that *will* affect the price of food going up or going down.

_____1. Drought
_____2. Labor dispute
_____3. A surplus of leather products
_____4. Higher gas prices
_____5. Disease wiping out the wheat crop
_____6. Increased advertising by large food companies
_____7. Bumper cotton crop
_____8. Season
_____9. Bumper orange crop

III. Fill in the blanks in each sentence to make it a true statement. Use the words in the word box. Each word will be used only once. Not all words will be used.

Word Box

Pesticides
Additives
Packaging
Air
Pollution
Variety
Methods
Weather
Conditions
Soil
Handling
Bruised
Storage
Fertilizer
Chemicals
Temperature
Preservatives
Quantity

1. Using ____________________ in processed foods to increase the keeping quality causes many consumers to be concerned.
2. Farmers are concerned about ____________________ pollution because it can slow photosynthesis.
3. When humus and loam are present in the ____________________ while it is being cultivated, a bumper crop is more likely to be produced.
4. Freezing temperatures at the time fruit trees are in bloom can reduce the ____________________ of fruits that will be available for eating.
5. Proper ____________________ will help to keep air away from food.
6. Using commercial ____________________ to increase the size of carrots can cause air and water pollution.
7. During long-term ____________________ of foods, their nutritional value can be reduced.
8. Spraying crops with ____________________ can kill both helpful and harmful pests.
9. When ____________________ are put in foods during processing, the nutritional content of the foods is sometimes improved.
10. When food is produced in a large ____________________, it is called a bumper crop.
11. The addition of harmful substances to the water and the air is called ____________________.
12. The proper ____________________ when food is being transported will help keep the food from getting too dry.
13. When foods are ____________________ during handling, they decay more quickly than if the skin remains in good condition.
14. Food handling ____________________ include addition of preservatives, processing, use of additives, storage conditions, and packaging materials.
15. Soil, air, pesticides, weather, and fertilizers are all ____________________ that affect the quantity of and quality that a farmer can produce.

Saturday Brunch Blues

Mr. Bell is a newly divorced father whose little girl, Nancy, visits him only on Saturdays. The first Saturday, while watching cartoons on television, Nancy saw an advertisement for Captain Crunch cereal and asked, "Please, Dad, may I have some?" So, of course, trying to be a good father, Mr. Bell hurried down to the store with Nancy and bought some.

In the following weeks Mr. Bell and Nancy developed a pattern: During the cartoons Nancy would see a cereal advertised, and later she and her father would buy it for her brunch. They bought Super Sugar Crisp, Sir Grapefellow, Cocoa Pebbles, Fruit Loops, Sugar Frosted Flakes, and Super Sugar Corn Chex. Nancy was very happy with this arrangement.

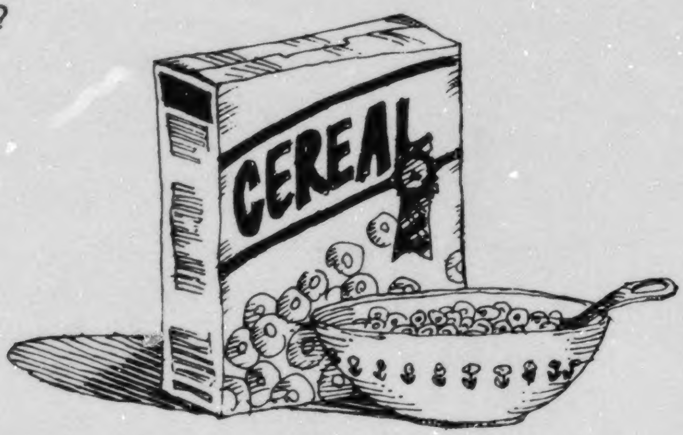
One Saturday Mr. Bell's friend Jennifer dropped by his home and said she would be happy to make brunch for Nancy. When she opened the cupboard and saw all the cereal boxes, she said to Mr. Bell, "I have to talk to you about this later." Jennifer had studied nutrition for many years and was a registered dietitian.

Later she had Mr. Bell sit down and said, "All of these cereals Nancy loves are between 30 and 50 percent sugar by weight! I will send you some information about them so that you can decide whether you want her to eat these cereals."

That week in the mail Mr. Bell received an information sheet entitled "Sugar Content of Breakfast Cereals by Weight." He was shocked at the sugar content of these popular cereals. He was also angry that the cartoon shows were advertising these cereals so heavily, thus creating Nancy's desire to have them.

Mr. Bell was confused about what to do. Should he write the cereal manufacturers, start a consumer action group, write the television stations that carried the advertising, or should he just tell Nancy she could not have the cereals she wants? He did not want Nancy to be angry with him, and he felt that her wanting the cereals was not entirely her fault. But he definitely did not want her eating all that sugar, either.

What should Mr. Bell do?



Sugar Content of Breakfast Cereals by Weight

Product*	Sugar as percent of total weight
General Foods, Corporation	
Post Alpha Bits	40
Post Oat Flakes	20
Post Toasties	7
Super Sugar Crisp	43
Cocoa Pebbles	44
Fruity Pebbles	44
General Mills, Inc.	
Mr. Wonderfull's Surprize	29
Wheaties	11
Sir Grapefellow	40
Cheerios	4
Total	11
Kellogg Company	
Cocoa Krispies	38
Sugar Frosted Flakes	29
Special K	9
Corn Flakes	7
Product 19	12
Froot Loops	35
Rice Krispies	7
Raisin Bran	6
Concentrate	11
Pop-Tart	26
Quaker	
100% Natural	19
Captain Crunch	37
King Vitamin	50
Life	14
Ralston-Purina Company	
Wheat Chex	6
Rice Chex	5
Corn Chex	14
Super Sugar Corn Chex	27

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*This chart was adapted from materials provided by Dr. Michael F. Jacobson, Center for Science in the Public Interest, 1755 S Street NW, Washington, DC 20009. Reprinted by permission of the Center for Science in the Public Interest.

Reporting Form

Name ____________________

Student Interviewed ____________

____

(Write *myself* here if this is your opinion.)

Due date ____________________

Quality of Food

Please complete this form as soon as possible after the school lunch break. That way your impressions will be fresh in your mind. Please answer all questions honestly, including positive and negative opinions. You should complete one form for yourself reflecting your opinion and another for a student you choose to interview.

1. What is your opinion of the nutritional quality of the foods served by our food service program?

2. What is your opinion of the taste of the foods served?

   Meats: ____________________

   Bread/cereals: ____________________

   Dairy products: ____________________

   Fruits/vegetables: ____________________

   Desserts: ____________________

3. What is your opinion of the freshness of the foods served?

   Meats: ____________________

   Bread/cereals: ____________________

   Dairy products: ____________________

   Fruits/vegetables: ____________________

   Desserts: ____________________

4. What is your opinion of the appearance of the foods served?

   Meats: ____________________

   Bread/cereals: ____________________

   Dairy products: ____________________

   Fruits/vegetables: ____________________

   Desserts: ____________________

Reporting Form

Name ____________________

Student Interviewed ____________

____

(Write *myself* here if this is your opinion.)

Due date ____________________

Variety of Food

Please complete this form as soon as possible after the school lunch break. That way your impressions will be fresh in your mind. Please answer all questions honestly, including positive and negative opinions. You should complete one form for yourself reflecting your opinion and another for a student you choose to interview.

1. What is your opinion of the variety of foods served for one meal by our food service program?

2. What is your opinion of the variety of foods served for one month? (You may want to look at a monthly menu to respond to this question.)

3. What is your opinion of the variety of textures of foods served?

   Crunchy: ____________________

   Soft: ____________________

   Chewy: ____________________

   Other: ____________________

4. What is your opinion of the variety of cultural foods served?

Reporting Form

Name ____________________

Student Interviewed ____________

____

(Write *myself* here if this is your opinion.)

Due date ____________________

Dining Environment

Please complete this form as soon as possible after the school lunch break. That way your impressions will be fresh in your mind. Please answer all questions honestly, including positive and negative opinions. You should complete one form for yourself reflecting your opinion and another for a student you choose to interview.

1. What is your opinion of the appearance of the dining areas?

Walls: ____________________

Tables: ____________________

Chairs: ____________________

Outdoor dining areas: ____________________

2. Is the dining area colorful? Explain your answer.

3. What is your opinion of the cleanliness of the dining areas?

Walls: ____________________

Tables: ____________________

Chairs: ____________________

Outdoor dining areas: ____________________

4. What is your opinion of the noise level in the dining areas?

Students: ____________________

Machinery, and so forth: ____________________

Music: ____________________

5. What is your opinion of the quality of lighting in the dining areas?

6. What is your opinion of the versatility in the dining areas?
   a. Is there enough room indoors during rainy days?
   b. Are there enough seats for everyone?
   c. Are the tables large enough to allow you to sit with friends?

26—82382

Sample Chart One

Name ____________

Group A
Quality of Food

1. Nutritional quality

2. Taste

   Meats
   Breads/cereals
   Dairy products
   Fruits/vegetables
   Desserts

3. Freshness

   Meats
   Breads/cereals
   Dairy products
   Fruits/vegetables
   Desserts

4. Appearance

   Meats
   Breads/cereals
   Dairy products
   Fruits/vegetables
   Desserts

K-143

Sample Chart Two

Name ____________________

Group B
Variety of Food

1. For one meal

2. Served over one month

3. Variety of textures

4. Variety of cultural foods

K-144

Name ______________

Sample Chart Three

Group C
Dining Environment

1. Appearance
   - Walls
   - Tables
   - Chairs
   - Outdoor dining areas

2. Color

3. Cleanliness
   - Walls
   - Tables
   - Chairs
   - Outdoor dining areas

4. Noise level
   - Students
   - Machinery, and so forth
   - Music

5. Lighting

6. Versatility
   - Rainy day accommodations
   - Adequate seating
   - Adequate table size

K-145

Food Signs

Raw Chicken Drumstick

This chicken was thawed from a frozen state, uncovered, on a kitchen counter at room temperature for three hours. The chicken was cut up with a knife on a cutting board, neither of which was washed.

Potato Salad

Potatoes were cut up for this salad on the same unwashed cutting board that was used to cut up the chicken. The salad was taken to a picnic and left unrefrigerated for several hours.

Can of Green Beans

This can of green beans has a bulging lid. The beans were home-canned with the oven canning method.

Chicken Salad Sandwich

This sandwich was prepared by a person who had open wounds on his hands, and the food came in contact with those cuts.

Food-Borne Illness Signs

Salmonella organism

Salmonella organism

Clostridium botulinum organism

Staphylococcus organism

Newspaper Articles

Salmonella Poisoning

Four members of the John Jones family were rushed to the Shasta General Hospital early Saturday afternoon. After spending Saturday night in the hospital, all were released this morning. The Shasta County Health Department's investigation revealed that the family had eaten fried chicken (partially cooked), which had been left out to thaw on the counter all Friday night. Salmonella bacteria were the culprits. The family experienced severe nausea, diarrhea, and high fever.

Food Poisoning at Picnic Due to Mishandled Food

Eight teenagers became violently ill, and three were hospitalized after consuming potato salad, macaroni salad, and chicken salad sandwiches during a picnic Saturday at Caldwell Park in Redding, California. Health officials discovered that the offending food was the chicken salad sandwiches that had been made by a teenager with an open cut on his hands. The teenager in question also admitted leaving the sandwiches unrefrigerated in his car for six hours prior to the picnic. The sandwiches contained high numbers of staphylococcus organisms that are capable of causing nausea, vomiting, diarrhea, and cramps, all of which the victims suffered.

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Name ______________

Types of Food Poisoning

Organism	How It Grows	Symptoms	Foods Involved	Control
1.				
2.				
3.				

K-149

(Transparency Master)

Types of Food Poisoning

Organism	How It Grows	Symptoms	Foods Involved	Control
1. Salmonella	Salmonella organisms are found in raw animal products and multiply at temperatures between 40° Fahrenheit (4° C) and 140° Fahrenheit (60° C). They can be destroyed by heat during cooking.	Symptoms occur 12 to 24 hours after food contaminated by salmonella organisms is eaten. Nausea, vomiting, diarrhea, and abdominal cramps are the effects.	Salmonella organisms grow in meat, poultry, egg products (custards, egg salad, meringue).	Wash hands before handling food; cook foods thoroughly; store foods below 40° Fahrenheit (4° C); and do not keep foods at room temperature for more than one hour. No infected person should handle foods.
2. Staphylococcus	Staphylococcus organisms are found in the nose, throat, hair, and skin and in infected cuts. When bacteria multiply, a toxin is produced that is not destroyed by heat.	Symptoms occur two to six hours after poisonous food is eaten. Nausea, vomiting, diarrhea, and abdominal cramps are the effects.	Staphylococcus organisms grow in pastries, custards, salads, sandwiches, and poultry or sea food salad.	Wash hands well; cook foods to 140° Fahrenheit (60° C); refrigerate at 40° Fahrenheit (4° C); do not handle foods if wounds or sores are on hands; cover mouth when coughing or sneezing; and wear plastic gloves when handling food.
3. Clostridium Botulinum	In the absence of air, clostridium botulinum grows and produces toxin in sealed jars and cans that are improperly processed.	Signs of botulism poisoning begin 12 to 36 hours after the food is eaten. Double vision, nausea, vomiting, inability to swallow, speech difficulty, and progressive paralysis of the respiratory system occur. Botulism poisoning leads to death.	Clostridum botulinum organisms grow in home-canned and commercially canned foods not properly processed, low-acid foods such as low-acid vegetables, and meats, poultry, and fish. Spores grow in the absence of air.	Follow accepted canning procedures for low-acid foods, throw out suspected foods without tasting them (those with a bulging lid or from a leaking can), and heat canned foods thoroughly.

Name ____________________

Food-Borne Illness

I. Unscramble the following three most common types of food poisoning organisms:

A. sucocspytalohc ______________________________

B. lelmsaonla ______________________________

C. midlcosturi munbolitu ______________________________

II. Match the following characteristics of food-borne organisms with the correct food-borne organism symbol. The symbols are as follows:

S = Staphylococcus
CB = Clostridium botulinum
SA = Salmonella

___ A. These organisms are found in your respiratory passages and on your skin.

___ B. Symptoms for this food-borne organism appear two to six hours after poisonous food is eaten.

___ C. The foods involved in this food-borne illness are home canned, nonacid foods that have not been properly processed.

___ D. Symptoms appear 12 to 24 hours after this particular organism is ingested and involve nausea, vomiting, and diarrhea.

___ E. The toxin produced by this organism is not destroyed by heat.

___ F. This organism grows in the absence of air.

___ G. This organism is found on raw animal products and can be destroyed by heat during cooking.

Name ____________________

Safety and Sanitation

A P E R I S H A B L E F O O D S X

R T R I C H I N O S I S S A T B A

O O C D E B A C T E R I A D I F L

P M G H W I J A U K S E N I M U L

T F G K H Q B Y L Z T M I S I D E

D O S P O R E S I L A C T I N A N

A O T I L F N K S O P B I N G N O

L D Y P E O I P M E H U Z F Y G M

A P E R S O N A L H Y G I E N E L

S O P O O D F R Z E L Q N C A R A

O I E T M H E A A N O I G T Y Z S

T S D O E A C S T A C M O V I O C

A O E Z F N T I Q T O X I N S N B

T N M O O D I T V Z C A Y E D E J

O I I A O L E O X R C E B Y L Y G

P N C A D E N S L O I T Z X O E R

B G M I C R O O R G A N I S M N Q

- Food poisoning
- Perishable foods
- Personal hygiene
- Staphylococci
- Microorganism
- Wholesome food
- Danger zone
- Potato salad
- Botulism
- Bacteria
- Parasites
- Food handler
- Infection
- Protozoa
- Timing
- Sanitizing
- Yeast
- Toxins
- Molds
- Disinfect
- Spores
- Salmonella

Name ________________

Food Poisoning

Fill in each blank with a *T* for a true statement or an *F* for a false statement.

____ 1. All persons who handle food should demonstrate good food safety and sanitation techniques.

____ 2. Microorganisms can cause food-borne illnesses.

____ 3. All bacteria are harmful because they spoil food and cause illness.

____ 4. In order to multiply and cause illness, bacteria must have food, warmth, moisture, and time.

____ 5. Food poisoning causing botulism is one of the most common types of food poisoning.

____ 6. Food poisoning causing botulism usually occurs in low-acid foods that are not canned properly.

____ 7. Washing hands after visiting the bathroom will reduce the chance for salmonella bacteria to come into contact with food to cause infection.

____ 8. Salmonella bacteria grow on protein foods such as raw meats, fish, egg products (e.g., custard), and poultry at temperatures ranging from 40° to 140° Fahrenheit (4° to 60° C).

____ 9. Bacteria multiply when food is kept at temperatures ranging between 140° to 212° Fahrenheit (60° to 100° C).

____10. Temperatures ranging from 40° to 140° Fahrenheit (7° to 60° C) are considered the danger zone because the hazard of bacterial growth is great within that range.

____11. Staphylococcus food poisonings occur very frequently. These organisms are in the respiratory passages and on the skin.

____12. A very small amount of the toxin from botulism bacteria can kill a person.

____13. Chicken salad sandwiches are susceptible to the staphylococcus bacteria.

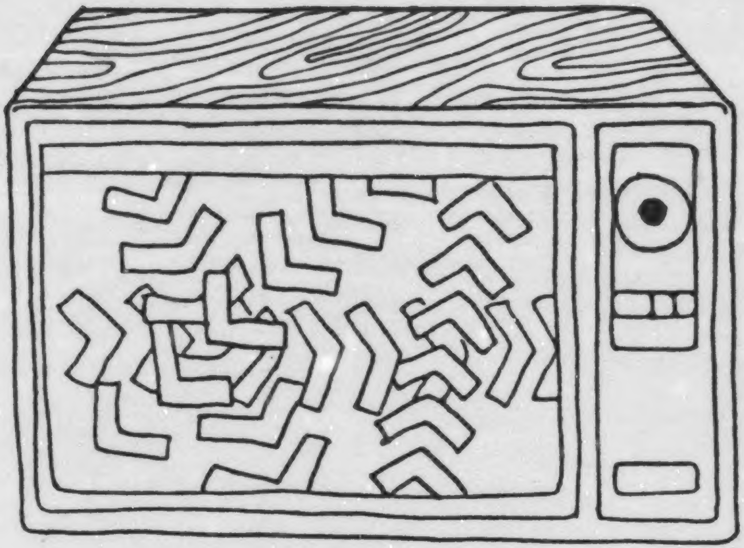
____14. Salmonella organisms in food are destroyed by heat. Cook foods thoroughly and use a meat thermometer if possible.

____15. Symptoms of staphylococcus food poisoning appear at least 24 hours after the contaminated food is eaten.

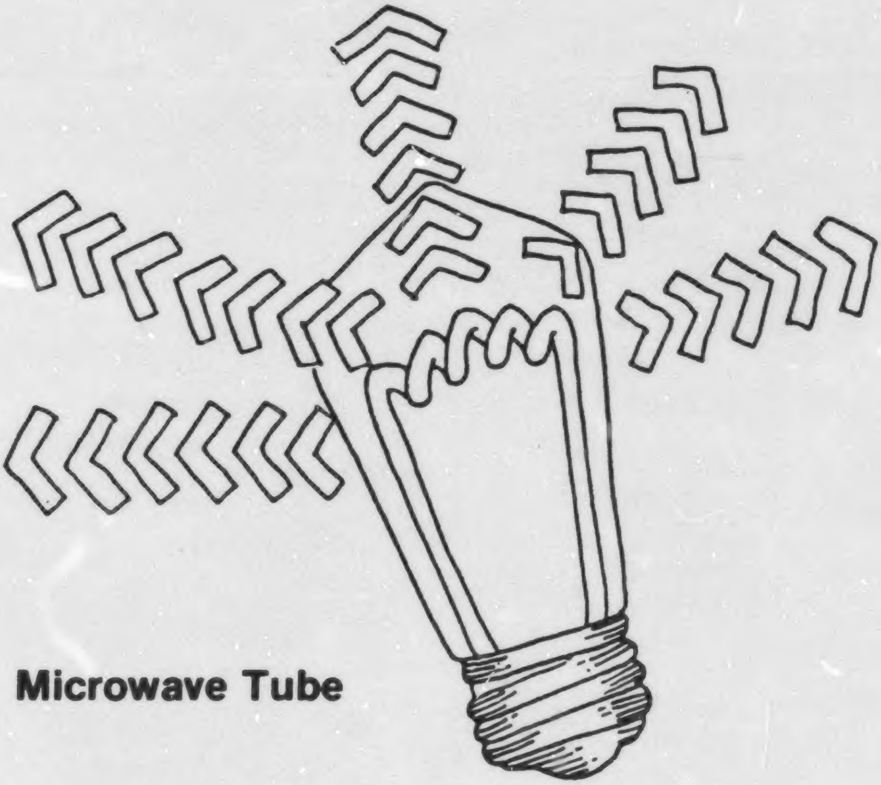
Tips on Vegetable Preparation

Use a pot with a lid.
Use as little water as possible.
Have the water boiling before adding vegetables.
Cut vegetables in large pieces.
Cook just until fork-tender.
Stir-fry or use a steamer basket.
Eat raw or cooked vegetables in their skins when possible.

Transparency I

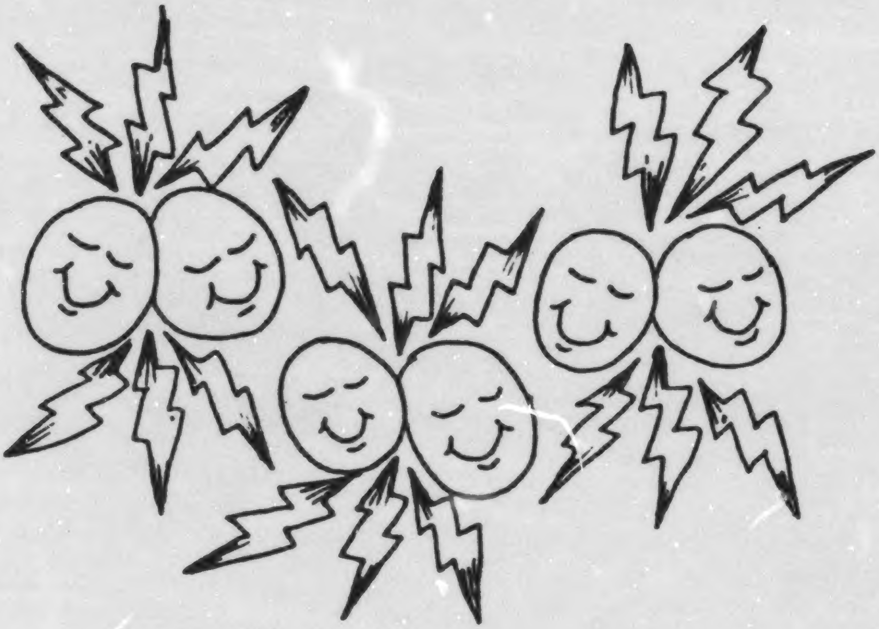


Microwave Oven

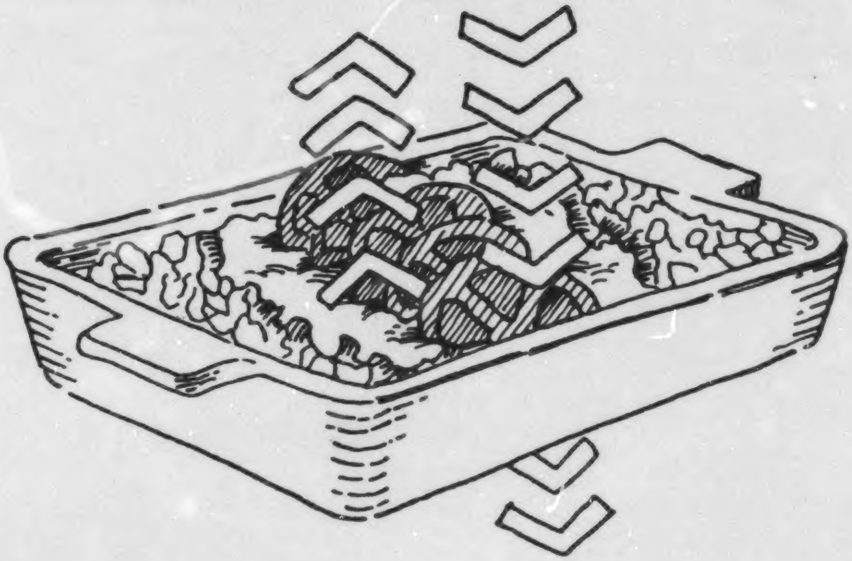


Microwave Tube

Transparency II



Molecules Agitating



Microwaves Passing Through Glass

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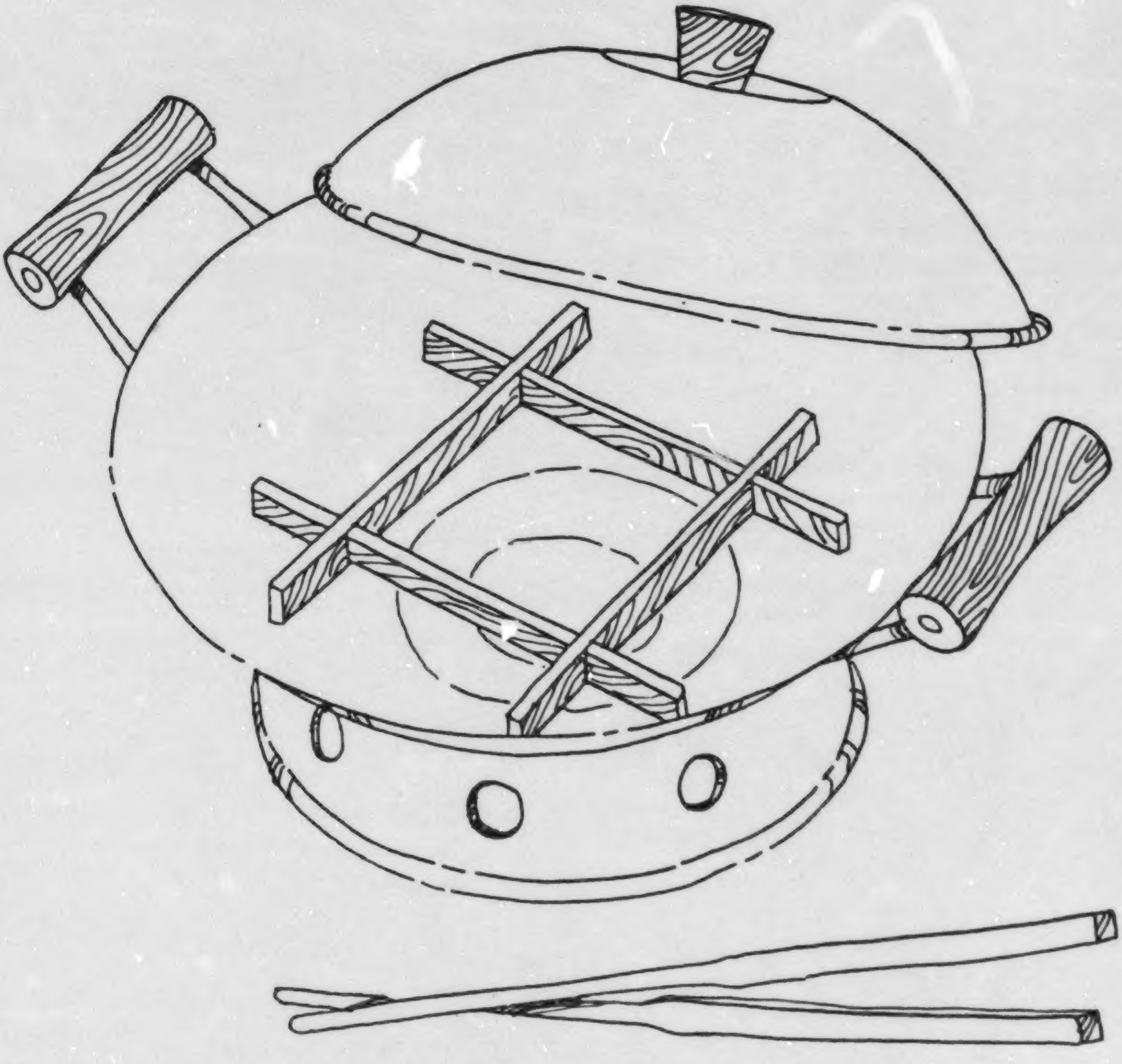
Wok

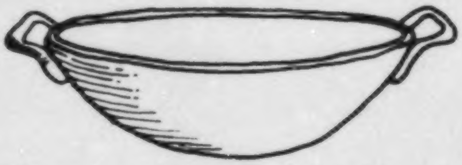


Stir-Frying

Stir-frying is an Oriental style of "meal in a pot" cookery. Even today, many people living in the Orient prepare their food using one pot over a single wood or kerosene flame. The stove is portable so that a meal can be made wherever the family is—at home, under a tree, or in the market place.

Method for use

A small amount of oil, preferably peanut oil, is put in the bottom of a large sphere-shaped pot called a wok. Actually, the pot is like half a sphere that has been spread out slightly at the top.



The wok is heated until one can feel the heat when a hand is held about three inches over the bottom of the wok. The food is then added and constantly stirred until the meat changes color and the vegetables are covered with a thin film of oil. The wok is then covered and removed from the heat for about five minutes. Flavoring is added; then the food is reheated gently and served immediately. Slight variations in order and timing are required for different dishes.

Nutritive advantages

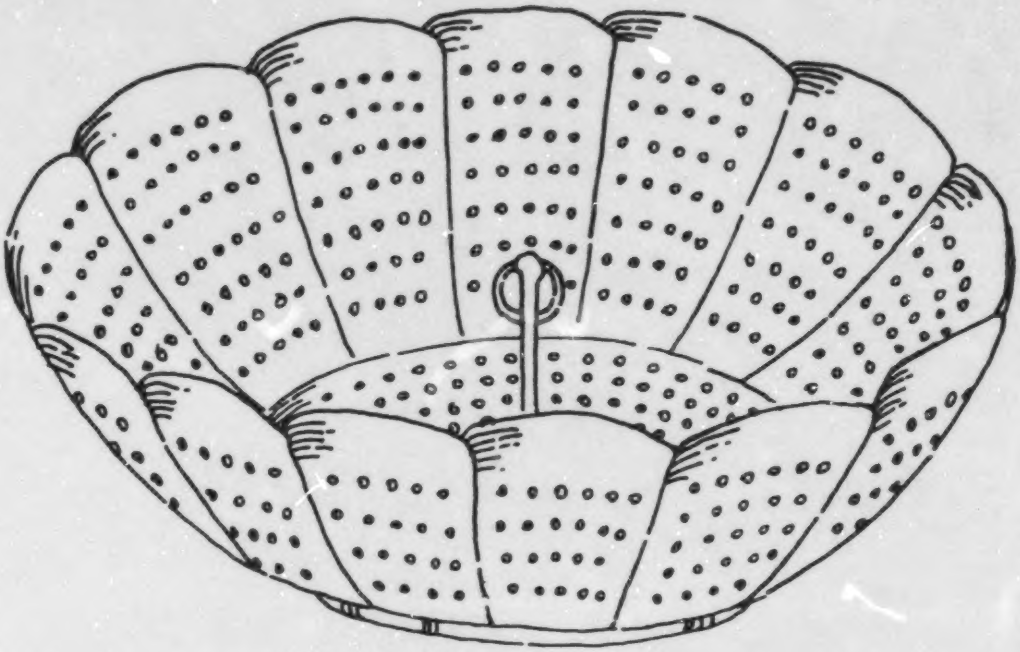
The thin coating of oil seals the vegetables so that little or none of the nutrients leach into the cooking water. The short cooking time also preserves the vitamins. The oil film prevents volatile gases from escaping from the food. Such gases cause the unpleasant odor that sometimes occurs when cabbage is cooking. The gases are acid in nature and give green vegetables an unappetizing, dull color. Vegetables cooked in a wok stay a bright green. All cooking juices are used as gravy so that if vitamins do go into the cooking water, none of the vitamins are lost.

Recipe for vegetable stir-fry

2 cups bean sprouts (259 g)
2 sliced green onions
2 sliced stalks of celery
½ bunch broccoli, broken into pieces
2 tablespoons (30 mL) wine vinegar (optional)
3 tablespoons (45 mL) oil
1 tablespoon (15 g) sugar (optional)
1 tablespoon (15 mL) soy sauce

Wash and slice the vegetables. Heat the pan and add oil. Add broccoli and celery, and stir-fry two to three minutes. Add the bean sprouts and onions; stir-fry one minute. Make sure that all of the vegetables are covered with the oil. Add the seasonings and cover for three minutes. Serve the vegetables immediately.

Basket Steamer



Test for Vitamin C

Materials:
Test tube
Test tube holder
Indophenol
Material to be tested

Procedure:

1. Put one inch (2.54 cm) of indophenol into a test tube.
2. Add drops of a food to be tested, one at a time.
3. Shake the test tube gently after each drop is added.
4. Observe and record the data. If the food contains vitamin C, the mixture will become colorless. If the food does not contain vitamin C, the mixture will stay blue.

Note: Indophenol (IN-doh-FEE-nohl) is a blue liquid. It becomes colorless if vitamin C is in a food.

Name ____________________

Food Preparation

Place a *T* in front of the statement if the statement is true. Place an *F* in front of the statement if the statement is false.

____ 1. Stir-frying is the art of cooking food slowly in a large amount of oil.

____ 2. Foods that are cooked by the steaming method should be tightly covered.

____ 3. Microwave cooking helps to maximize nutrient retention.

____ 4. Although foods are cut in small pieces for stir-frying, fewer nutrients are lost because no liquid is drained from the food when it is served.

____ 5. The hot oil used in stir-frying helps to make the food greasy.

____ 6. When cooking in a microwave oven, do not use a cover to trap steam.

____ 7. Foods that are steamed lose a lot of nutrients because they are placed above boiling water.

____ 8. Stir-frying vegetables causes more vitamin C loss than boiling vegetables.

____ 9. The short cooking time that microwave cooking takes allows for a great nutrient loss.

____10. Because little or no water is used when foods are cooked in a microwave oven, nutrients are retained.

Freezing

Freezing is a very popular means of preserving food at home. The popularity of this method is probably due to the ease with which foods may be prepared for freezing and the convenience of the home freezer.

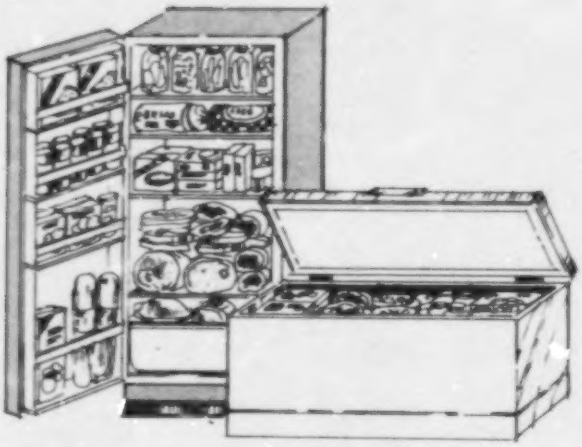
Only foods of high quality should be frozen. Fruits and vegetables free from all signs of spoilage, bruises, and decay give the best results. Not all kinds of fruits and vegetables are equally desirable for freezing. A list of suitable foods is available from the nearest state cooperative extension service office.

Freezing does not sterilize food; so everything possible should be done to reduce bacterial contamination. Fruits and vegetables should be carefully and thoroughly washed and made ready to cook or serve before freezing. They should be prepared for freezing as soon as they are received to prevent loss of vitamins. Most vegetables should be blanched or scalded before packaging to prevent loss in color, flavor, texture, and nutritional value. The foods should be cooled quickly to stop the cooking action.

A container or packaging material that is moisture-proof and vapor-proof is desirable for retaining high quality in frozen food. Rigid containers of aluminum, glass, tin, plastic, or heavily waxed cardboard are suitable for freezing. Waxed paper, paper bags, and regular cellophane should not be used because they are not moisture-proof and vapor-proof.

Labeling of frozen foods helps in finding them and in using first the foods that have been in the freezer the longest. The label should note the contents, date of freezing, maximum storage date (example: Use before September 12.), number of servings or amount, and other information which would be helpful at the time of use.

The freezer should be set at 0 degrees Fahrenheit (−18° C) or lower. Make sure that completely thawed foods are not refrozen.



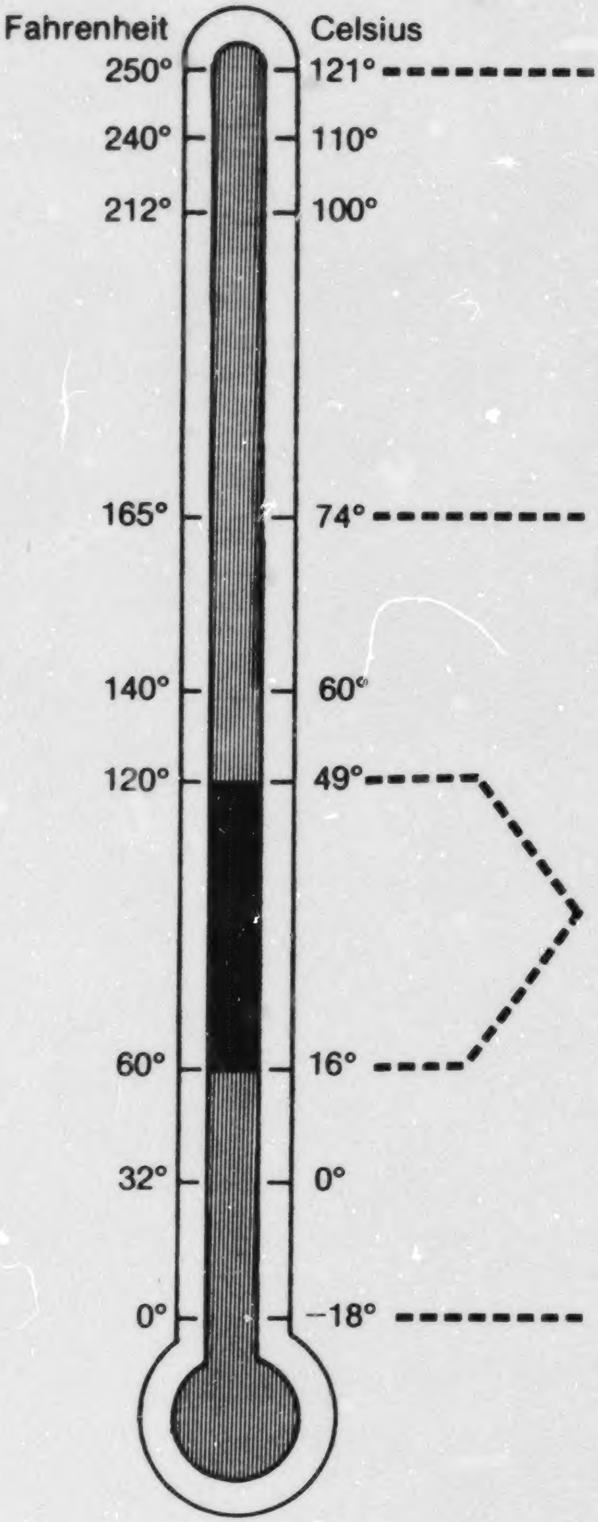
Name ____________________

Freezing to Preserve

Fill in the blank with the correct word to complete these sentences about freezing food.

1. ______________ is a very popular means of preserving food at home.
2. Only foods of _______ _______ should be frozen.
3. Fruits and vegetables that are free from all signs of ______________ yield the best results.
4. Freezing does not ______________ food.
5. Fruits and vegetables should be carefully and thoroughly ________ and made ready to cook or serve before freezing.
6. Fruits and vegetables should be prepared for freezing as soon as received to prevent loss of ______________ .
7. All vegetables should be ______________ or scalded to stop enzymatic action.
8. A container or packaging material that is ______________ is desirable for retaining high quality of frozen food.
9. Rigid containers of ______________ , ______________ , and ________ are suitable for freezing.
10. ______ _______ and _______ ______ should not be used because they are not moisture-proof or vapor-proof.
11. The label should note the ______________ , ______________ , and ______________ .
12. Freezers should be set at ______________ or lower.

Temperature


Fahrenheit
Celsius
250°
121°
240°
110°
212°
100°
165°
74°
140°
60°
120°
49°
60°
16°
32°
0°
0°
−18°

Canning temperature for low-acid vegetables, meat, and poultry in a pressure cooker

Canning temperature for fruits, tomatoes, and pickles in a water bath canner

Warming temperature for preventing growth but allowing the survival of some bacteria

Drying temperature for preserving foods

Danger zone! The temperature in this zone allows rapid growth of bacteria.

Freezing temperature stops the growth of bacteria but may allow bacteria to survive.

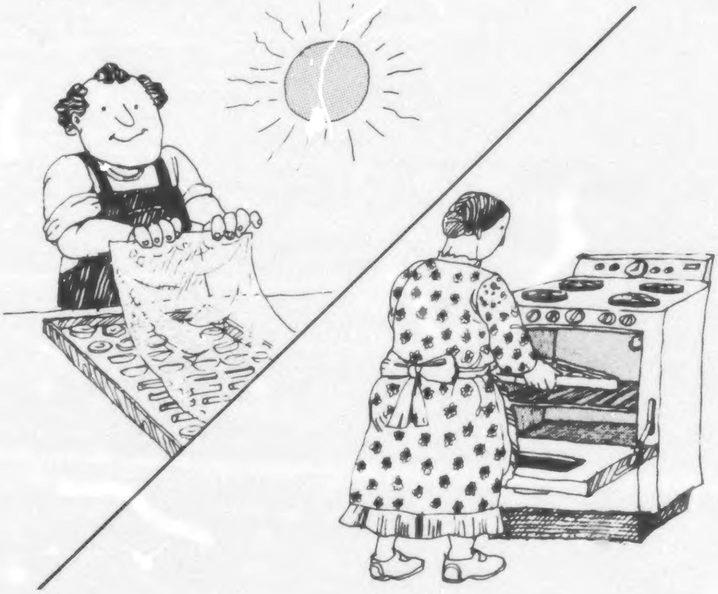
Drying

Drying food is one way to preserve it. This method removes enough water to prevent the growth of food-spoiling microorganisms: bacteria, yeasts, and molds.

Sun drying was the earliest form of food preservation. This technique requires no energy and the least equipment for making food safe for long-term storage. The sun is the source of energy. Hot days with the temperature near 100° Fahrenheit (38° C) are desirable. This drying process normally takes three to four days under optimum conditions. Foods to be dried may be placed anywhere, provided they are exposed to the sun. Cheesecloth is often used to protect the food from insects.

Oven drying is a very convenient method of drying foods. It is especially convenient to use when the weather is not warm enough for sun drying. An appropriate screen or net to hold the food as it dries is all that may be needed. A temperature setting of 140° Fahrenheit (60° C) is suitable for oven drying of fruits, vegetables, fruit leathers, and meats.

Dried foods, because of their small bulk and weight, are easy to package, ship, and store.



Name ________________

Drying to Preserve

Fill in the blank with the correct word to complete these sentences about drying food.

1. Drying food is one way of ______________ foods.
2. ______________ is removed from the food to prevent the growth of food-spoiling microorganisms.
3. ______________, ______________, and ______________ are food-spoiling microorganisms.
4. ______ ______ was the earliest form of food preservation.
5. The ______________ is the source of energy for sun-drying foods.
6. Sun drying normally takes about ____________ to ______ days with optimum conditions.
7. ______________ is often used to protect the food from insects.
8. ______ ______ is a very convenient method of drying foods when they cannot be sun dried.
9. A temperature setting of ______________ Fahrenheit is suitable for oven drying.
10. ______________, ______________, and ______________ are foods that may be oven dried.
11. Dried foods are easy to package, ship, and store because of their ______ ______ and ______________.

Drying Fruit

Recipe for Sun-Dried Apple Slices

1. Peel and core the apple.
2. Cut it into thin slices approximately ⅛-inch (.3 cm) thick.
3. Place the slices on a dry tray.
4. Place the tray in a sunny spot.
5. Cover the tray with cheesecloth if there is a problem with ants.
6. Turn the slices every day so that they will dry evenly, and if evenings are damp, bring the fruit inside during the night.
7. The drying time will be approximately three to four days.
8. Apple slices are dried when they are soft and pliable and when no moisture appears in the center when the apple is cut.

Fruit Leathers

Fruit leathers, which may also be called fruit rolls or fruit taffies, are basically pureed fruits which have been sweetened and dried. Apricots, apples, grapes, cherries, berries of all types, pineapples, bananas, oranges, peaches, pears, plums, and papayas are fruits which may be used to achieve a flavorful and pleasing result.

Recipe for Fruit Leather

1. Wash the fruit well and drain it thoroughly.
2. Cut the fruit into chunks and place it in a food blender. Add enough fruit to make two cups (474 mL) of pureed fruit. The fruit may or may not be peeled, depending on individual preference. Make sure the seeds are removed.
3. To prevent discoloration of light-colored fruits, stir in two teaspoons (10 mL) of lemon juice.
4. Line a cookie sheet with a piece of plastic wrap that is secured to all sides of the pan.
5. Pour the puree onto the prepared sheet about ¼-inch (.64 cm) deep. Distribute the puree evenly by tilting the tray. Be sure the mixture has run into all corners.
6. Heat the oven to 140° Fahrenheit (60° C). Place the sheet in the oven. The oven door may be left open about two to six inches (5 to 15 cm), depending on the kind of oven door. Drying time will be

approximately four to five hours, or the fruit may be sun dried, a process which will take from three to four days.

7. To test for doneness, feel the fruit leather, which should be sticky to the touch. Lift the edges of the fruit and peel them back about an inch (2.54 cm). If the fruit peels easily, it is properly dried.
8. Roll the cooled leather into a loose roll. Wrap it in a plastic wrap and store it in a cool, dark cupboard.

Canning

Canning is the preservation of foods in sealed containers and usually involves the application of heat. During canning the bacterial growth is slowed or stopped so that the food may be kept for a long period of time.

It is important to select quality foods for canning. Fruits have the best flavor when they are mature and ripe; vegetables are best when young and tender.

Fruits and vegetables are prepared as for cooking. The food is thoroughly cleaned with running water and, if necessary, a vegetable brush. Some foods may need to be peeled; others blanched, or dipped in boiling water and then in cold water to remove the skin. Cores or seeds are removed if necessary. Large pieces are usually halved, quartered, or sliced.

Generally, sugar and salt are the ingredients added to foods being canned. The degree of sweetness desired, the use for which the fruit is intended, and the acidity of the fruit influence the amount of sugar to be used. If desired, fruits can be canned without added sugar.

Although there are essential pieces of equipment which may be used only when canning, most of the equipment needed will probably be on hand in the home kitchen.

The choice of containers used is important. Either cans or glass jars may be used, but glass jars are more widely used in home canning. Glass jars may be reused, with only the sealing device needing to be replaced. Containers with a simple sealing device are desirable, because any delay in sealing the sterilized food increases the chances for spoilage.

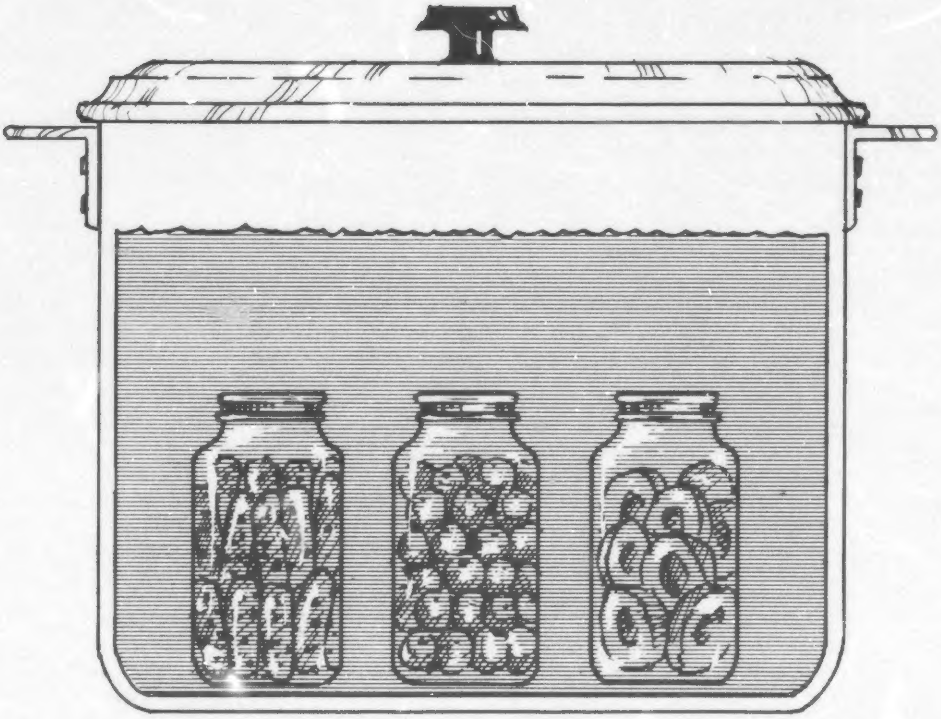
Processing consists of heating food in cans or jars with the lids in place. Processing kills certain organisms and sterilizes as nearly as possible the contents of the container. The boiling water bath canner is the simplest and least costly type of canner. It consists of a kettle, a rack on which to place jars, and a tight cover. The kettle should be deep enough to permit one or two inches of water over the jars and also allow for brisk boiling of the water. The length of time

the containers are kept in boiling water varies, depending on the food. Fruit and high-acid vegetables may be processed by means of the boiling water bath.

Pressure cookers are also used as a means of processing canned goods. Meat, poultry, and low-acid vegetables are food items that must be processed in this manner. These foods need to be processed at temperatures higher than can be reached with the hot water bath method.

Sealed containers should be cooled as rapidly as possible. However, only metal containers should be cooled using cool water, because a sudden change in temperature could cause glass breakage. Glass jars should be placed top side up on a rack or folded cloth. The day after canning, each container should be examined to be sure it is sealed. The containers may then be wiped, labeled, and stored in a cool, dry place.

Do not use any containers that show signs of spoilage, such as a bulging jar or can lid or a leak. If the food looks spoiled, foams, or produces a strange odor during heating, discard it.



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Name ________________

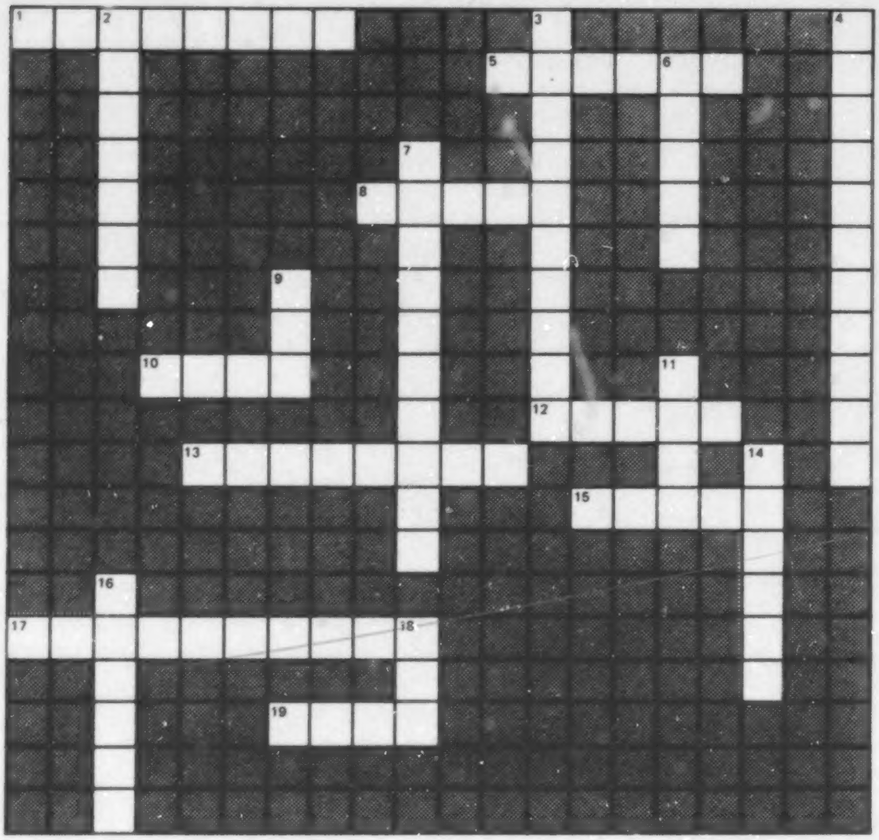
Canning to Preserve

Fill in the blanks with the correct word to complete these sentences about canning food.

1. ____________ is the preservation of foods in sealed containers and usually involves the application of heat.
2. During canning the ______ ________ is slowed or stopped so that the food may be kept for a long period of time.
3. Fruits have the best flavor when they are ____________ and ____________.
4. Vegetables are best when they are ____________ and __________.
5. Some foods may need to be ____________ in boiling water and then in cold water to remove the skin.
6. ____________ and ____________ are ingredients commonly added to foods being canned.
7. ____________ or ____________ containers may be used for canning.
8. Glass jars are reusable with only the ______ ______ needing to be replaced.
9. Processing kills certain ____________ and ____________ as nearly as possible the contents of the containers.
10. The________ _____ _____canner is the simplest and least costly type of canner.
11. The boiling water bath canner consists of __________, ________, and ______ ______.
12. Sealed containers should be ____________ as rapidly as possible.
13. Every container should be checked to be sure that it is __________.
14. Canned foods should be stored in a ________, _______ ________.
15. Do not use canned foods that show any signs of ____________ such as leaks or a bulging jar lid.

Name ______________________

Food Preservation Crossword Puzzle



Across

1. Food spoiling microorganism
5. Piece of equipment used in boiling-water-bath canning
8. Type of food that may be canned, frozen, or dried
10. Number of days required for sun drying
12. Ingredient that may be added to foods being canned
13. Process in which foods in a moisture-vapor-proof container are kept at 0° Fahrenheit (−18° C).
15. ______ is removed from food to prevent growth of food-spoiling microorganisms.
17. Processing that kills certain enzymes and as nearly as possible the contents of the container
19. Foods may be dried in the ______ at 140° Fahrenheit (60° C).

Down

2. The method of preservation of food in sealed containers which usually involves the application of heat
3. A type of food that can be canned, frozen, or dried
4. Used to protect drying foods from insects
6. Indicates contents, date, maximum storage date, and number of servings
7. Heating foods in cans or jars with lids in place to certain temperatures
9. Container used in canning
11. Ingredient that may be added to foods being canned
14. Oldest method of preserving food
16. Every processed food container should be checked the day after canning to be sure it is ______ ______________.
18. Source of energy in a drying technique

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Name ____________________

Food Preservation Quiz

Read each question and circle the correct answer.

1. What is the oldest method of food preservation?
   - (a) Canning
   - (b) Drying
   - (c) Freezing
2. A moisture-proof and vapor-proof container is used in which food preparation technique?
   - (a) Canning
   - (b) Drying
   - (c) Freezing
3. Freezing is a food preparation technique in which
   - (a) Water is removed from the food.
   - (b) Water is added to the food.
   - (c) Food is placed in a temperature setting of 0 degrees Fahrenheit (−18° C).
4. Which food preservation technique involves placing sealed containers in a kettle of boiling water?
   - (a) Canning
   - (b) Drying
   - (c) Freezing
5. Which food preservation technique removes water from food?
   - (a) Canning
   - (b) Drying
   - (c) Freezing
6. For which foods should a pressure cooker be used in the canning process?
   - (a) Fruits
   - (b) High-acid vegetables
   - (c) Low-acid vegetables, meat, fish, and poultry

What Does A Food Inspector Check?

Some examples are:

- Dripping pipes or vents above food
- Mice
- Spiders and spiderwebs
- Uncovered garbage can
- Refrigerator not defrosted
- Dishes put in sink without scraping
- Foods stored on floor rather than up off floor on shelves or pallets
- Pudding or other perishable foods held without refrigeration
- Uncovered food
- Dirty cleaning rag on service counter
- Litter on floor
- Employees placing fingers inside drinking glasses
- Temperature of refrigerator above 40° Fahrenheit (4° C)
- Temperature of freezer above 10° Fahrenheit (-12° C)
- Animals in kitchen
- Flies in kitchen and eating area
- Hole or tear in screen door
- Employees or cooks using a mixing spoon to taste food
- Soiled glasses placed with clean glasses
- Cockroaches or other insects
- Employees allowing fingers to touch food during food service
- Employees sneezing or coughing while preparing or serving food
- No sneeze guards on the serving line to protect the food
- Soiled counter and tables
- Dirty washroom, no soap in dispenser
- Employees holding knives and forks by eating ends
- Food set on counter to cool before being put in refrigerator
- Cracks or holes on walls, ceilings, or floors

Name ____________________

Food Service Rating Form

After visiting a food service establishment, check the appropriate box following each statement.

	Yes	No
1. Is the floor clean?	☐	☐
2. Does the floor have any cracks or holes?	☐	☐
3. Is the garbage can covered?	☐	☐
4. Is food covered or wrapped when served?	☐	☐
5. Are animals allowed in the food service preparation areas?	☐	☐
6. Are flies present in the cooking or eating area?	☐	☐
7. Do the employees touch food items after they have handled money?	☐	☐
8. Do food service personnel have long hair hanging down into the food?	☐	☐
9. Are the tables and counters clean?	☐	☐
10. Is the washroom clean?	☐	☐
11. Do the food service personnel appear clean and neat?	☐	☐
12. Would you eat in this food establishment?	☐	☐

Comments or suggestions for improvement:

Grade _____ Description of the kind of food service establishment:

Comments:

Governmental Agencies Information Sheet

The main purpose of food sanitation codes is to protect the consumer of food. Specific purposes are to:

- Protect food against contamination by observing sanitary standards. These standards are meant to reduce the opportunity for bacteria to gain entrance into the food and multiply.
- Ensure the wholesomeness of food so that it is clean, free from adulteration, and suitable for human use.
- Meet customer expectations by providing a clean, appealing, pleasant atmosphere for meal service.

A food sanitation program is designed to cover all eating and drinking establishments, as well as food sources and the transportation of foods. Food sanitation programs should be based on nationally accepted public health principles and standards, but methods may vary because of local customs and problems.

The U.S. Department of Health and Human Services (HHS) and the U.S. Department of Agriculture (USDA) are the two federal agencies that are the most concerned with the sanitary aspects of food production. Two divisions of the Department of HHS are the Food and Drug Administration (FDA) and the Public Health Service (PHS). These divisions set up model codes which may be adopted by states, counties, and municipalities.

These two federal agencies are responsible for monitoring products which are sold interstate (between two states) and products which are imported. For example, if the port of San Francisco received a shipment from Ceylon, the FDA would be the agency responsible for inspecting the product for food sanitation and safety.

To assure consumers that the food product they expect to buy is the one they actually buy, the federal Food and Drug Administration established standards for food products. All foods must be wholesome, free from contamination, and unadulterated.

For certain products the FDA has established standards of identity and quality. These products are known as standardized products. It is not mandatory for these labels to list any ingredients except preservatives and additives. In the interest of consumers, however, many food manufacturers do list their ingredients. Other standardized products, such as catsup, have ingredients which are trade secrets. Their ingredients are not listed on the label, but they are regulated by the FDA. Products which are not standardized must list on the label all ingredients in descending order by weight and also must list all additives and preservatives.

The U.S. Department of Agriculture is responsible for inspecting all red meats, poultry, eggs, dairy products, and fresh fruits and vegetables sold in interstate commerce. This mandatory inspection is done to ensure wholesomeness and proper labeling. When these products are sold only within a state, the respective state department of food and agriculture enforces the regulations, functioning the same as the USDA does in interstate commerce.

The USDA also provides grade standards for food. Federal and state graders work in all 50 states to make buying and selling more efficient by providing a common language for trading and a means of establishing prices.

USDA grades most often found in the grocery store are the following: *AA* for eggs; *prime, choice,* and *good* for meats; *A* for milk; and *A* for poultry.

Other agencies having authority over food sanitation are state and local agencies, city health departments and boards of health, and the state departments of health. In general, the food sanitation code is set up by the public health service and widely adopted by state and local health departments. This code defines applicable terminology and sets standards for food supplies, food protection, personnel, food equipment, contamination controls, and inspections of operations and facilities.

The state department of food and agriculture monitors the safety and sanitation of meats and crops, such as fresh fruits and vegetables, which are marketed intrastate (within the state). The state department of health inspects all other foods sold within the state, such as milk and other dairy products and all processed foods (e.g., cooked, dried, or pasteurized).

The local health department is responsible for inspecting food units to ensure adherence to sanitation and safety codes. The local health departments employ sanitarians who inspect restaurants, grocery stores, meat markets, dairies, and school food service operations on a regular basis.

Name __________________

Governmental Agencies

Complete each statement.

1. The ____________ and ____________ are the two main divisions of the U.S. Department of Health and Human Services which set up model sanitation codes.
2. A second federal agency which is concerned with the sanitation of food is the ____________.
3. The ________ _________ ________ _________ would be the agency responsible for checking our area restaurants.
4. An outbreak of food poisoning is reported in the city. The ________________ is the person responsible for dealing with this situation.
5. Grocery store customers in our area have been observed putting their hands into the large containers of granola and scooping out portions. The agency that would deal with this problem is the ______ _______ _______ _______.

Complete the following questions:

6. Which agency establishes food standards for food products?

7. Why were food standards established?

8. How must the ingredients of nonstandardized foods be listed on the food label?

9. What products are inspected by the USDA?

10. What does the local department of health inspect?

Name ______________________

Fact-Finding Mission

Visit a local grocery store and complete your mission of questions.

1. Find one product in the dairy case that does not have a standard of identity. Name the product and list the ingredients.
2. What agency is responsible for making sure that the label is correct?
3. Find one product in the dairy case that is graded by the USDA. Name the product and the grade.
4. Go to the condiments section of the store and find one product that has a standard of identity. Name the product.
5. Name the agency responsible for establishing the standard of identity.
6. Does cheese have a standard of identity?
7. Look for USDA grading on red meat. What is the grade? What is the price per pound of this meat?
8. Name the agency responsible for inspecting the grocery store.

How You Can Report to the FDA

If you come across a food, drug, medical device, or cosmetic that you believe may be mislabeled, unsanitary, or otherwise harmful, you will perform a public service by reporting it to the Food and Drug Administration (FDA).

The information you supply to the FDA can and often does lead to detection and correction of a violation. Many products have been recalled or removed from the market because of action initiated by the consumer.

The FDA cannot take legal action solely on the basis of your complaint, of course. But this agency will investigate promptly, in accordance with the requirements of the law. And if a hazard is found, the FDA will seek to remedy the situation within the bounds of the law.

Here are some guidelines to follow in reporting hazards to the FDA:

Before You Report

Before you report to the FDA about the possible hazards of a product, ask yourself these questions:

- Have I used the product as labeled?
- Did I follow the instructions carefully?
- Did an allergy contribute toward the bad effect?
- Was the product old when I opened it?

Make sure you have taken all these factors into consideration before you report a possible hazard to the FDA. The hazard may lie in improper use of a product rather than in an inherent defect.

With a medicine, for example, you may suspect that the product is harmful if you experience an unusual reaction. You should report this situation to your doctor immediately.

The reaction, however, may be a side effect rather than an indication of a defect of the product. It may not be necessary to inform the FDA about the product. Your physician will be the best guide.

Where to Report

You may refer your complaint in writing or by telephone to the nearest FDA field office or resident inspection station.

The FDA has ten regional offices, 19 district offices, and 97 resident inspection stations throughout the United States. You can find the address and telephone number of the nearest FDA office in the telephone directory under United States Government, Food and Drug Administration.

If you wish, you may write about your complaint directly to FDA headquarters. The address is Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20852. The complaint will reach the correct person.

How to Report and to Whom

If you have a grievance to report, follow these procedures:

- Report your grievance as soon as possible after it occurs. Give your name, address, telephone number, and directions on how to get to your home or place of business.
- State clearly what appears to be wrong.
- Describe in as much detail as possible the label of the product. Give any code marks that appear on the container. For example, markings on canned foods are usually embossed or stamped on the lid.
- Give the name and address of the store where the article was bought and the date of purchase.
- Save whatever remains of the suspected product or the empty container for your doctor's guidance or for possible examination by the FDA.
- Retain any unopened containers of the product you bought at the same time.
- See your physician at once if an injury is involved.
- Report the suspect product to the manufacturer, packer, or distributor shown on the label and to the store where you bought it.

The FDA has limited jurisdiction over certain consumer products. If you have complaints about any of the following, these are the federal agencies to inform:

- Suspected false advertising—Federal Trade Commission
- Meat and poultry products—U.S. Department of Agriculture
- Sanitation of restaurants—local health authorities
- Products made and sold exclusively within a state—local or state health department or similar law enforcement agency
- Suspected illegal sale of narcotics or dangerous drugs (such as stimulants, depressants, and hallucinogens)—Drug Enforcement Administration, U.S. Department of Justice
- Unsolicited products by mail—U.S. Postal Service
- Accidental poisonings—Poison control centers
- Dispensing practices of pharmacists and drug prices—state board of pharmacy
- Pesticides, air and water pollution—Environmental Protection Agency
- Hazardous household products and toys—Consumer Product Safety Commission

Name ____________________

Know the Right Role

Classify each of the following statements as either a local, state, or federal responsibility. Place the letter associated with each statement in one of the appropriate columns:

A. Inspects food labels of products sold within the state
B. Inspects a shipment of bananas from South America
C. Checks county dairy to ensure quality of milk
D. Inspects a product produced and sold in California
E. Establishes model sanitation codes used by all agencies
F. Closes the local restaurant for sanitation problems
G. Issues an operating permit for the school kitchen

Local Agency	State Agency	Federal Agency

Name ________________

Food Sanitation and Safety

Match the appropriate agency with the statement that describes its responsibility. You may use each letter more than once.

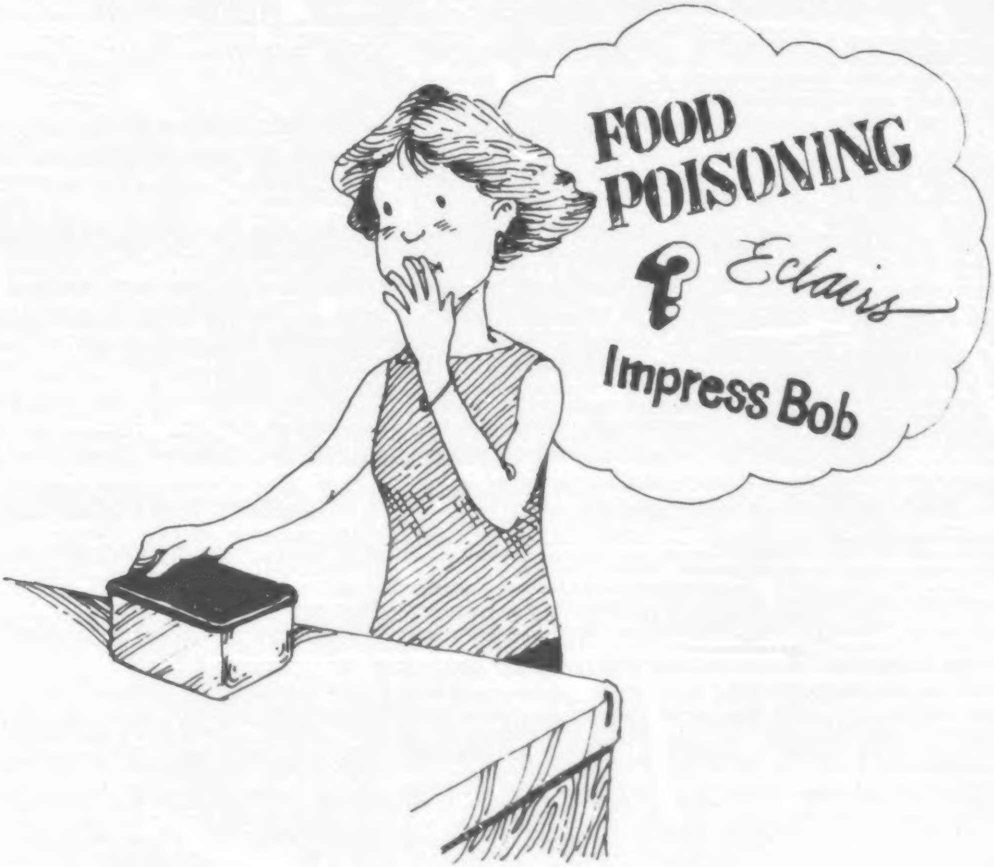
A = Local department of health
B = State department of food and agriculture
C = U.S. Department of Agriculture
D = Food and Drug Administration
E = State department of health—food and drug section

____1. This agency is responsible for grading red meats for interstate (between two states) commerce.
____2. This agency is responsible for inspecting the neighborhood grocery store.
____3. This agency is responsible for inspecting fresh fruits and vegetables which are shipped from one county to another within California.
____4. This agency establishes standards for food products.
____5. This agency grades the red meats most often found in the grocery store.
____6. This agency employs sanitarians who inspect the school cafeteria.
____7. This agency is responsible for inspecting processed foods which are produced and sold intrastate (within the state).

Darlene's Dilemma

It is 7 a.m. Saturday morning, already blistering with the summer heat. Darlene is worried. Scott, Karin, and Bob, the class president, will arrive soon. Her thoughts focus on Bob, who will accompany her to the class picnic. She becomes more concerned as she thinks about how she had counted on Mom to prepare a lunch fit to impress him. The lunch was prepared, but Darlene's brother had removed the carton containing the lunch from the refrigerator and had forgotten to put it back. It remained on the kitchen counter all night.

This lunch was to be the perfect meal to share with a special guy. Ham sandwiches and chocolate eclairs are Darlene's favorite foods. Her mouth usually waters merely at the mention of Mom's eclairs filled with rich egg custard. Now, as the morning heat seeps in through the kitchen window, Darlene recalls yesterday's lesson on food-borne illness. She knows the dangerous effects of the combination of heat and time on these particular foods. Can Darlene possibly refill the carton with substitutes of graham crackers and peanut butter sandwiches? Bob will arrive in 15 minutes! What should Darlene do?



Name ____________________

Food Handling Observation Sheet

List at least two incidents or situations you consider to be improper or unsafe handling, preparing, or preserving of food (possible places to look: your home, a restaurant, the school cafeteria, or a supermarket).

Situation	Place Observed
(a)	
(b)	

Other Publications Available from the Department of Education

This nutrition education curriculum guide is one of approximately 500 publications that are available from the California State Department of Education. Some of the more recent publications and those of interest to the users of this document are the following:

California Private School Directory	$9.00
California Public School Directory	12.50
Commodity Administrative Manual, Institutions Other Than Schools (In binder) (1984)	11.00
Commodity Administrative Manual, Public and Nonpublic Schools (In binder) (1982)	11.00
Eating Habits of Students in California Public Schools, A Summary (1981)	2.50
Handbook for Planning an Effective Mathematics Program (1982)	2.00
Handbook for Planning an Effective Reading Program (1983)	1.50
Handbook for Planning an Effective Writing Program (1983)	2.50
Health Instruction Framework for California Public Schools (1978)	1.35
History—Social Science Framework for California Public Schools (1981)	2.25
Improving the Attractiveness of the K—12 Teaching Profession (1983)	3.25
Making Mealtime a Happy Time for Preschoolers (1983)	7.50/10
Nutrition Education—Choose Well, Be Well: A Curriculum Guide for High School	8.00
Nutrition Education—Choose Well, Be Well: A Curriculum Guide for Junior High School (1984)	8.00
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